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## DISEASES CAUSED BY BACTERIA AND FUNGI

VALLIS, P. (1958). Valutazione clinica di tre diversi metodi di lotta contro la mastite contagiosa da *"Str. agalactiae"*. **[Comparative study of three methods of control of *Streptococcus agalactiae* mastitis.]**—*Arch. Vet. Ital.* **9,** 313-328. [Summaries in English, French, German and Spanish.] **1274**

In an experiment, over a period of three years, 27 herds comprising 1,000 cows were divided into three groups. In one group the method of complete eradication was adopted. This consisted in treatment of all infected quarters, repeated bacteriological examinations, strict hygiene and prophylaxis, and elimination of animals resistant to treatment. In the second group the same method was applied but resistant animals were not eliminated. In the third group all the cows, infected or not, were subjected to treatment immediately after drying off; no hygienic or prophylactic measures were taken. Results in each group are discussed and compared.—T.E.G.R.

PINI, A. (1958). La mastite streptococcica nella Provincia di Torino. **[Incidence and control of streptococcal mastitis of cattle in the Turin Province, Italy.]**—*Progr. vet., Torino* **13,** 448 & 450-451. **1275**

Bacteriological examination of milk samples from 1,414 cows in 47 herds revealed that 613 (43·3%) were infected with *Str. agalactiae*. Penicillin was applied therapeutically and prophylactically and a month later the incidence was 21%. A second treatment was administered. On the whole results were not satisfactory. The control of mastitis, it is considered, is intimately bound with strict hygiene and under actual conditions it is not possible to put into effect a systematic plan of therapeutic control when the disease exists only in latent form. On the other hand systematic treatment of cows after lactation is considered advisable.—T.E.G.R.

REDAELLI, G. (1958). Sulla persistenza della penicillina nel latte inoculata per vie diverse in animali sani ed infetti di mastite streptococcica. **[Persistence of penicillin in the milk of healthy cows and of cows with streptococcal mastitis.]**—*Arch. Vet. Ital.* **9,** 299-311. [Summaries in English, French, Spanish and German.] **1276**

Moderate doses of penicillin (1–10 million i.u.) inj. i/v or i/m produced efficacious concentrations in the milk for the treatment of *Str. agalactiae* mastitis. Persistence of the antibiotic in the mammary gland after endomammary administration of 100,000–400,000 i.u. in aqueous or oily soln. with or without substances retarding absorption was also assessed. Results are discussed and evaluated on the basis of experimental data on the sensitivity of 100 strains of *Str. agalactiae*.—T.E.G.R.

MALANEY, G. W., WEISER, H. H., VAN WINKLE, Q. & PEEK, J. M. (1958). **Activity of *Streptococcus agalactiae* on casein of heat-sterilized cow's milk.** — *Appl. Microbiol.* **6,** 407-412. **1277**

When the streptococcus was incubated in milk it changed the relative concentration of the electrophoretic components of casein, probably as a result of denaturation of the protein.—R.M.

YAMAGIWA, S., ONO, T., UEMURA, T. & IDA, T. (1958). **Histopathological studies on bovine mammary gland. II. Tissue reaction to microscopical pseudoconcrement.** — *Jap. J. vet. Res.* **6,** 51-61. [In English.] **1278**

Nineteen excellent photomicrographs illustrate the situation and character of corpora amylacea found in sections prepared from 73 quarters of bovine mammary gland affected with mastitis of varying severity. The authors conclude that this pseudoconcrement is produced in the lumen of the acinus, but that it may be

attached to, or enveloped by, the epithelium of acini and ducts. In some cases it is embedded in interstitial tissue. Cellular reaction to pseudoconcrement is very slight, and may be absent. It is suggested that differences of opinion in the earlier literature on the origin of corpora amylacea may be explained by the fact that these bodies tend to be free in the acini in normal tissue, but attached to the walls of acini or ducts in cases of mastitis.—I. H. PATTISON.

BELL, J. F., OWEN, C. R. & JELLISON, W. L. (1958). **Group A streptococcus infections in wild rodents.** — *J. infect. Dis.* **103,** 196-203. [Authors' summary modified.] **1279**

Group A streptococcal infections that occurred among small rodents during a period of abundance in Klamath County, Oregon, were characterized by swollen limbs and somatic abscesses. The infection rate, which was as high as 19% during winter, varied according to season and locality. Swiss white mice inoculated s/c with large doses of the streptococcus usually succumbed; some mice that received small inocula developed lesions typical of the natural disease. In wild, naturally infected rodents, the disease was indolent and benign. Yet, by reason of deformities and consequent incapacitation, it was inimical to survival. The source of infection and the reason for the high morbidity rate in winter are unknown.

BARNES, E. M. (1958). **The effect of antibiotic supplements on the faecal streptococci (Lancefield group D) of poultry.**—*Brit. vet. J.* **114,** 333-344. [Author's summary modified.] **1280**

The two faecal streptococci (Lancefield Group D) found most frequently in the gut of birds 10–12 weeks old were *Str. faecalis* var. *liquefaciens* and *Str. faecium*. Chlortetracycline in the feed, either at 25 p.p.m. throughout life, or at 400 p.p.m. for short periods, did not alter the total numbers of faecal streptococci. It did, however, lead to the development in large numbers of a different, very resistant, strongly reducing, non-proteolytic strain of *Str. faecalis*, which replaced the other strains. Three months after the chlortetracycline supplement was stopped, faecal samples indicated that the atypical strain had disappeared, *Str. faecalis* var. *liquefaciens* once more becoming dominant. Caecal contents examined after 5 months confirmed this. There was also an increase in resistant strains of *Str. faecalis* var. *liquefaciens* in the control groups as compared with birds 12 weeks old. It is concluded that the use of an antibiotic in the feed may nullify its effect as a preservative of carcasses.

TRNKA, Z., MÁLEK, P., ŠTERZL, J. & KOLC, J. (1958). **Experimental contributions to the lymphatic pathogenesis of anthrax infection.** —*Schweiz. Z. allg. Path.* **21,** 1082-1095. [In English. Summaries in French and German. Authors' summary modified.] **1281**

When spores were injected directly into lymph nodes, lab. animals died quicker and with a smaller dose than after s/c inj. Spread of the bacilli through the lymphatic system was studied by means of a permanent lymph-venous connection in sheep. In these animals, anthrax bacilli were found in the lymph 10–16 hours earlier than in the blood, following i/d inj. of spores into a hind leg.

STRANGE, R. E. & THORNE, C. B. (1958). **Further purification studies on the protective antigen of *Bacillus anthracis* produced *in vitro*.**—*J. Bact.* **76,** 192-202. **1282**

Working with F. C. Belton, the authors have previously described the preparation of a protective (immunizing) antigen from anthrax bacilli [*V.B.* **25,** 2255] and an agar-diffusion method for titration of the antigen [*V.B.* **29,** 656]. This report presents a new fractionation procedure for isolating two components from culture filtrates of anthrax bacilli, each of which is a potent protective agent and gives only one characteristic precipitation line with antiserum in agar. The degradation of protective antigen by enzymes in culture filtrate was discussed. —R.M.

IVÁNOVICS, G. & FÖLDES, J. (1958). **Problems concerning the phylogenesis of *Bacillus anthracis*.**—*Acta microbiol. Acad. Sci. hung.* **5,** 89-109. [In English.] **1283**

Several methods of distinguishing *B. anthracis* from *B. cereus* were tried and success was obtained with tests for phosphatase and penicillinase activity, and for phage sensitivity. A specific glucosamine-galactose polymer was identified in all 26 strains of anthrax bacilli examined. It was concluded that the two bacilli were distinct species.—R.M.

PESTI, L. (1958). Über das Verhältnis der Milzbrandbazillen zu ihren im Boden vorkommenden Verwandten. **[Anthrax bacilli and related soil organisms.]**—*Acta vet. hung.* **8,** 151-164. [In German.] **1284**

P. examined 105 strains of anthrax bacilli and 40 strains of aerobic spore-bearing saprophytes which, with the exception of four, were serologically classifiable within the following groups: *B. anthracoides, B. cereus, B. cylindro-*

*sporus, B. subtilis* and *B. megatherium*. He disagreed with Smith, Gordon & Clark [*Misc. Publ. U.S. Dep. Agric.* No. 559. (1946)] that *B. anthracis* is a variant of *B. cereus*.—E.G.

LONG, S. K. & WILLIAMS, O. B. (1958). **Method for removal of vegetative cells from bacterial spore preparations.**—*J. Bact.* **76,** 332. **1285**

The authors found that methods previously described were unsuitable for *Bacillus stearothermophilus* and *B. cereus*. The method they developed was based on the formation of gelatinous globules of vegetative cells when tubes containing the deposit from centrifuged cultures were gently rotated after careful addition of 5 ml. water to each centrifuge tube.—R.M.

CHEVRIER & SOUBELET. (1958). La tuberculose bovine dans la région de Casablanca. [**Bovine tuberculosis in Casablanca.**] — *Maroc méd.* **37,** 779-783. **1286**

In Morocco the overall incidence of bovine TB. is only 3·5%. Around Casablanca there are about 120 dairy farms containing European cattle: the proportion of these reacting to tuberculin tests in 1957 was 6·5%. In indigenous cattle the proportion was 0·6%, and in those of crossed European and Moroccan breeds 4·1%. Control measures are the importation of cattle negative to tuberculin tests, annual tuberculin testing of all dairy cattle, and the slaughter of reactors with compensation of the owners.

—M.G.G.

LESSLIE, I. W. (1958). **Tuberculosis in a wallaby caused by the avian type tubercle bacillus.** — *Brit. vet. J.* **114,** 358-360. [Author's summary modified.] **1287**

A case of TB. in a captive wallaby (*Macropus*), caused by the avian type tubercle bacillus, is described. The literature on TB. in marsupials is reviewed.

KERTAY, N. (1958). Über die Anwendbarkeit der Middlebrookschen Hämolyse-Reaktion zur Feststellung der menschlichen und tierischen Tuberkulose. [**Use of the Middlebrook haemolysis reaction for the diagnosis of tuberculosis in man and animals.**]—*Acta microbiol. Acad. Sci. Hung.* **5,** 165-173. [In German.] **1288**

The Middlebrook haemolysis reaction was negative in 373 of 546 Mantoux-positive human beings and positive in 139 of 479 non-reactors to the Mantoux test. Of 427 cattle selected at random, 122 were tuberculin reactors, only 45 of which also yielded positive Middlebrook reactions. Sera of only about one third of human beings and cattle with clinical TB. contained haemolysing antibodies. K. concluded that in its present form the Middlebrook test can not replace allergic tests.—E.G.

SOLTYS, M. A. (1958). **Public health aspect of tuberculosis in domestic animals.**—*Brit. med. J.* November 8th, 1133-1136. **1289**

TB. in cattle, sheep and goats, pigs, horses, dogs, cats, and birds is discussed, with special mention of incidence, pathology and type of tubercle bacillus. Cattle in Gt. Britain should soon be free from the disease, but other animals, particularly dogs, will continue to endanger human beings.—M.G.G.

TAPIE, J., MONNIER, J., DELAUDE, A. & LE TALLEC, Y. (1957). Primo-infection tuberculeuse de type bovin à point de départ cutané chez un inséminateur. [**Primary tuberculosis of the finger contracted from a cow by a man engaged in artificial insemination.**]—*Bull. Soc. méd. Hôp. Paris* Nos. 31-32. pp. 1034-1039. **1290**

The authors considered that the extent to which human beings contract TB. from cattle may be considerably greater than is recorded. They briefly discussed the risks.

They gave details about a lesion in a man engaged in artificial insemination of cows. A tender area developed in the elbow region, with a swelling about the size of a walnut. There was a slight rise in temperature. When seen a small excoriation was present on a finger involving the nail and the patient stated that, in his work, minor hand injuries were not uncommon and healed quickly. Antibiotic treatment was given. Later bovine type tubercle bacilli were cultured from a lymph node.

It is suggested that the routine use of antibiotics has resulted in a change in the clinical picture of skin TB.—W.A.P.

TRAUTWEIN, K. (1958). Les réactions non spécifiques à la tuberculine. [**Non-specific tuberculin reactions.**]—*Bull. Off. int. Epiz.* **50,** May. pp. 305-312. [Summary in English.] **1291**

Non-specific tuberculin reactions are due to allergy, caused by Johne's disease, dermatitis nodosa ("Skin Tuberculosis"), or infection with avian tubercle bacilli or non-pathogenic mycobacteria, or to hetero-allergy, caused by pyogenic infections, parasites or hormonal influences. Environmental factors may also play a role. The method used at present for resolving non-specific reactions is to repeat the tuberculin test 6–8 weeks later, either with bovine tuberculin alone or with bovine and avian tuberculins

simultaneously. The simultaneous test is not infallible, and recently the use of 3 tuberculins was recommended, the third being "Rabin" tuberculin, prepared from a non-pathogenic mycobacterium. The simultaneous test has been used with success in the Black Forest since 1956; the proportion of doubtful reactors fell from 4·2% in 1955 to 0·3% in 1957.—M.G.G.

GILANI, S. & SELKON, J. B. (1958). **The niacin test for differentiating human tubercle bacilli from other mycobacteria.** — *Tubercle, Lond.* **39,** 396-398. **1292**

The authors confirmed the value of the niacin test described by Konno *et al.* [*V.B.* **27,** 2584; **28,** 2729].—R.M.

PROKHOROV, A. V. (1958). **[Agglutination test for diagnosis of tuberculosis in birds.]** — *Veterinariya, Moscow* **35,** No. 9 pp. 60-64. [In Russian.] **1293**

P. described the preparation and testing of antigen for the agglutination test previously mentioned [*V.B.* **28,** 2398]. The test was based on that described by Karlson *et al.* [*V.B.* **20,** 1552]. Of 130 strains isolated from fowls or geese, one (Strain 9) was found suitable for antigen production. Tuberculin tests were performed on 23,355 birds (mainly fowls) and 756 reacted. Blood from the non-reactors was submitted to the agglutination test and 2,079 samples were positive. The incidence of TB. lesions in various batches of positive birds ranged from 3 to 72%. —R.M.

RICE, C. E., KONST, H. & CONNELL, R. (1958). **Studies of Johne's disease in Canada. V. Comparative specificity of complement fixation and intradermal tests.**—*Canad. J. comp. Med.* **22,** 319-326. [Summary in French.] **1294**

The comparison of reactivity in skin tests with P.P.D. johnin and avian tuberculin and c.f. tests with specific antigens was made in two groups of sensitized cattle.

The observations and results are discussed with the conclusion that animals sensitized to avian tubercle bacilli by exposure under natural conditions would tend to give less false-positive reactions in routine serological tests for Johne's disease than in routine intradermal tests with P.P.D. johnin.—R. V. L. WALKER.

DANNENBERG, A. M., JR. & SCOTT, E. M. (1958). **Melioidosis: pathogenesis and immunity in mice and hamsters. II. Studies with avirulent strains of *Malleomyces pseudomallei*.**—*Amer. J. Path.* **34,** 1099-1121. [Authors' summary modified.] **1295**

Bacteriological studies have indicated that certain relatively avirulent strains of *Pfeifferella whitmori* produced a generalized, though inapparent, infection in mice following large doses by the subcutaneous, intraperitoneal or respiratory routes.

Pathological studies demonstrated that these strains produced a hitherto undescribed type of respiratory melioidosis in mice and hamsters, manifested by non-progressive microscopic pulmonary lesions which showed little or no necrosis and were accompanied, in mice, by limited evidence of systemic toxicity.

Procedures known to decrease the ability of the host to inhibit the accumulation of bacteria, *e.g.* starvation or cortisone administration, increased the severity of the respiratory melioidosis caused by these strains. This was indicated by the presence of focal necrotic pulmonary lesions exhibiting some of the characteristics of lesions produced by virulent strains.

The avirulence of the strains seemed to be due to a relative inability to establish lesions and a concomitant failure to accumulate in the tissues of the host. However, the ability of the avirulent strains to injure the host seemed comparable to that of virulent strains when similar numbers of organisms were present in the tissues.

VICKERS, C. L. & BIERER, B. W. (1958). **Triple sugar iron agar as an aid in the diagnosis of erysipelas.** — *J. Amer. vet. med. Ass.* **133,** 543-544. [Authors' summary modified.] **1296**

Rapid isolation and identification of *Erysipelothrix rhusiopathiae* by the use of triple sugar iron agar is described. Identification can sometimes be made in six hours, but usually 14 hours is required. During 12 months, a total of 40 isolations from separate flocks of turkeys and herds of pigs was made by this method. The method is rapid, economical, reliable, and adaptable to a practitioner's laboratory.

KUCSERA, G. (1958). Untersuchungen über Rotlaufbakterienträger sowie über die biologischen Eigenschaften der aus Bakterienträgern gezüchteten Rotlaufstämme in einem mit Adsorbat-Vakzine immunisierten Schweinebestand. **[Carriers of swine erysipelas bacilli and properties of strains isolated from carriers following immunization with adsorbed vaccine.]**—*Acta vet. hung.* **8,** 129-135. [In German.] **1297**

K. tested a method for the collection of tonsil swabs in 98 live and slaughtered pigs. He collected 576 samples from 55 pigs which had been immunized against swine erysipelas with an adsorbed vaccine. From 18 pigs he isolated

74 strains of *Erysipelothrix rhusiopathiae*, of which 15 were of Type A, 25 of Type B and 34 of Type N. Type A was recovered only from the tonsils of those which had been experimentally infected with this type. Samples from 67 non-immunized pigs 4–5 months old were free from *E. rhusiopathiae*. Nine of 25 pigs 7–8 months old, and 15 of 30 aged from $1\frac{1}{2}$–$4\frac{1}{2}$ years, were carriers. A total of 129 strains was isolated, 90 of which were Type B and 39 Type N. Those from immunized pigs were non-pathogenic. Presence of *E. rhusiopathiae* in the tonsils was, with one exception, confined to the summer months.—E.G.

GALE, C. & SMITH, H. R. (1958). **Studies on shipping fever in cattle. I. The experimental exposure of cattle with various cultures of Pasteurella.**—*Amer. J. vet. Res.* **19,** 815-817. [Authors' summary modified.] **1298**

Sixteen calves were inoculated by various routes mainly intratracheal and subcutaneous, with cultures of *Past. haemolytica* and *Past. septica* without producing illness. Cortisone and diethylstilboestrol, used as stressing agents, did not seem to alter the resistance of animals to the challenge. At P.M. examination no indication of pneumonia was found. No significant temperature reaction was noticed and the blood picture was not altered to any extent. Virulence titrations in mice, for the cultures used, showed that *Past. septica* strains varied in virulence, while *Past. haemolytica* was relatively non-pathogenic.

SHAMATAVA, V. P. (1958). **[Effect of environmental factors on occurrence and distribution of pasteurellosis in cattle.]**—*Veterinariya, Moscow* **35,** No. 7 pp. 47-49. [In Russian.] **1299**

S. discussed data on the incidence of haemorrhagic septicaemia in Georgia during the past 17 years. Maximum incidence occurred in hilly and mountainous districts having a hot, damp climate, particularly during the summer, but no districts were free from the disease. The causal organism retained its virulence in soil 45 days in summer and 155 days in winter, and 87 days in water. Filtered abomasum contents from cattle, added to 10-month cultures of the organism in the proportion 1 : 1, inactivated the organisms after 30–180 min., or in up to 30 min. in the proportion of 2 : 1, the actual time varying with the pH of the abomasum contents. It was suggested that change in pH of abomasum contents, such as occurred when cattle were moved to summer mountain pastures, permitted infection with pasteurella.—R.M.

NIKIPHOROVA, N. M. (1958). La pasteurellose des animaux domestiques. **[Pasteurellosis in domestic animals in the U.S.S.R.]**—*Bull. Off. int. Epiz.* **50,** May. pp. 176-188. [English summary modified.] **1300**

In the U.S.S.R., pasteurellosis occurs in cattle, buffaloes, sheep, goats, pigs, reindeer, horses, rabbits, wild boars, wild saigas, silver foxes, mink, fowls, geese, ducks, guinea-fowl, turkeys and several species of wild birds. Pasteurellosis of cattle, buffaloes and sheep occurs mainly in the south; the distribution of fowl cholera is less restricted.

Among the pasteurella strains isolated in the U.S.S.R., Type 1 (Roberts) or Type "B" (Carter) predominates. Among the avian strains, Type "A" predominates.

The use of precipitated formolized vaccine against bovine, ovine and porcine pasteurellosis, combined with sanitary and hygienic measures in enzootic areas, has proved effective in controlling the disease.

Oxytetracycline therapy is highly effective.

MIHAJLOVIC, S. & BUTOZAN, V. (1958). Les pasteurelloses chez les animaux domestiques en Yougoslavie. **[Pasteurellosis in domestic animals in Yugoslavia.]**—*Bull. Off. int. Epiz.* **50,** May. pp. 189-194. **1301**

Fowl cholera occurs throughout Yugoslavia, but is most frequent on the plains and in marshy regions in autumn and winter. Pasteurellosis of sheep is sporadic and endemic, affecting only certain regions, and occurring chiefly in winter and early spring. In summer lambs may be affected. In pigs sporadic outbreaks occur throughout the year. In cattle it is rare; usually calves or cattle fatigued by transport are affected. Predisposing factors are transport, parasitic infestation, moist climate, and poor hygiene. Sulphonamides, antibiotics, and hyperimmune serum are used for treatment and prophylaxis.—M.G.G.

HAMDY, A. A. H. (1958). **Observations on respiratory disease agents in lambs.**—*Dissertation, Ohio* pp. 124. [Abst. from abst. in *Diss. Abstr.* **19,** 210. (1958).] **1302**

Pneumonia was found in 438 of 995 lambs examined at slaughter. Records kept for 201 lambs over a period of 3 years revealed that 34 of them died from pneumonia. *Past. septica* and *Past. haemolytica* were recovered from throat swabs of healthy lambs and from pneumonia lesions. A P.P.L.O. and a virus were also recovered from lung lesions. Neither agent administered alone or combined reproduced

pneumonia. A combination of stress and the virus seemed to provide favourable conditions for the other two agents, and led to pneumonia. —R.M.

PILET, C., VALETTE, L., LABIE, C. & FONTAINE, M. (1958). Pseudo-tuberculose dans un élevage de myocastors. **[Pseudotuberculosis in nutria.]** — *Bull. Acad. vét. Fr.* **31**, 299-303. **1303**

Two outbreaks of *Pasteurella pseudotuberculosis* infection in nutria are described. In one outbreak the symptoms were emaciation, depression and loss of appetite. Of 500 animals, 5 died. P.M. examination revealed nodules chiefly in the lungs, and also in the spleen, kidneys and liver. The other outbreak was characterized by diarrhoea. P.M. examination revealed lobar pneumonia and acute enteritis. *Past. pseudotuberculosis* was isolated from both outbreaks. One was controlled by isolating affected animals and treating them with oxytetracycline parenterally.—M.G.G.

HUYGELEN, C. (1958). La valeur thérapeutique des antibiotiques dans le traitement de la pasteurellose des lapins. **[Treatment of pasteurellosis in rabbits with antibiotics.]** — *Bull. agric. Congo belge* **49**, 509-514. [In French. Summary in Flemish.] **1304**

An outbreak of pasteurellosis in rabbits characterized by sudden deaths was controlled by treatment of all in-contacts and disinfection of the hutches. Dihydrostreptomycin was injected daily s/c at 100 mg./kg. body wt. for 3 days. A second outbreak with both acute and chronic cases was controlled by giving oxytetracycline as 0·4% of the food for 7 days, disinfection, and isolation of the chronic cases. It is considered that antibiotics, although curing acute cases and preventing generalization in subacute cases, probably do not eradicate infection in rabbits with abscesses and rhinitis.—M.G.G.

HORNE, W. I. & BERLYNE, G. M. (1958). **Empyema caused by *Pasteurella septica*.**— *Brit. med. J.* October 11th, 896. **1305**

A strain of *Past. septica* which produced acid from lactose was isolated from a fatal human case of empyema. There is no previous reference to the isolation of such a strain from man, though it has been isolated from animals. —M.G.G.

D'ASCANI, E. & VENTURI, D. (1958). Su una infezione spontanea da *Bacterium pyocyaneum* (*Pseudomonas aeruginosa*) in un allevamento di cavie. **[An outbreak of *Pseudomonas pyocyanea* infection in guinea-pigs.]** — *Zooprofilassi* **13**, 617-623. **1306**

A spontaneous outbreak of *Ps. pyocyanea* infection in g.pigs is described. Adult females and offspring were affected, adult males were unaffected. Only a few animals showed symptoms—staring coat, difficult respiration and, shortly before death (5–6 hours after onset of symptoms), convulsions, muscular tremors and a drop in temp. Croupous pneumonia, serohaemorrhagic fluid in the body cavities and congestion of the uterus, liver, spleen, kidneys, lymph nodes and adrenal glands were observed in the adult females P.M.; in the young animals fluid in the cavities was the only finding. The causal organism was identified as *Ps. pyocyanea* by its morphological, cultural and biological characteristics. Streptomycin and other antibiotics were ineffective and the outbreak was controlled by a formolized autogenous vaccine. —T.E.G.R.

SCHLEGEL-OPRECHT, E. (1958). Reversion von A minus- zu A plus-Mutanten bei Colimastitisstämmen. **[Reversion of A-minus to A-plus mutants in coli bacil'i from mastitis.]** —*Schweiz. Z. allg. Path.* **21**, 994-1002. **1307**

Six capsulated strains of *E. coli* from [? bovine] mastitis were studied. Non-capsulated forms without A antigen were obtained by ultraviolet treatment. Some acquired A antigen after culture in human citrated blood.—R.M.

BIGLAND, C. H. & QUON, A. B. (1958). **Infections of poultry with Arizona paracolon in Alberta.**—*Canad. J. comp. Med.* **22**, 308-312. **1308**

From turkey flocks with histories of sudden deaths in baby birds and blindness and head twisting in poults 2–4 weeks of age, with mortality ranging from 10% to 50%, *Arizona paracolon* has been frequently isolated. In five instances isolations were made from poults hatched from setting eggs imported from the U.S.A. The organism involved, hatchery outbreaks and laboratory studies are discussed and reference is made to the public health significance.—R. V. L. WALKER.

GANGULI, S. (1958). **Salmonella serotypes in India.** — *Indian J. med. Res.* **46**, 637-642. **1309**

32 serotypes were listed. Those found in animals between 1950 and 1957 were *S. dublin* in calves and rats, *S. enteritidis* in cattle, fowls and lab. animals, *S. gallinarum, pullorum* and

*litchfield* in fowls, *S. poona* and *weltevreden* in g. pigs, and *S. typhi-murium* in calves, fowls and lab. animals.—R.M.

SALISBURY, R. M. (1958). **Salmonella infections in animals and birds in New Zealand.**—*N. Z. vet. J.* **6,** 76-86. **1310**

From 1948 to June 1957, 1,385 salmonella strains, of 6 types, were isolated from animals and birds in New Zealand. The disease is closely connected with management practices and high stocking rates. Of 416 strains from cattle, 412 were *S. typhi-murium,* 2 were *S. bovis-morbificans,* and 2 *S. cholerae-suis* and *S. newington.* Cases are usually sporadic in cattle, and are mostly in lactating cows, often with a history of a metabolic disorder. The highest incidence is in October and November, the months of high butter-fat production. Of 243 strains from sheep, 239 were *S. typhi-murium* and 4 *S. bovis-morbificans.* Outbreaks occur mainly in ewes on a restricted diet. Of 35 strains from horses, all were *S. typhi-murium,* mostly from animals 4 weeks to 3 months old. *S. cholerae-suis* infection is the most serious disease of pigs in New Zealand. Pullorum disease is rare, thanks to the policy of blood testing and slaughter. *S. dublin* has been isolated from man only.—M.G.G.

VAN OYE, E. & DEOM, J. (1958). Les salmonelloses chez les oiseaux de basse-cour au Congo Belge et au Ruanda-Urundi. [**Salmonellosis in poultry in the Belgian Congo and Ruanda-Urundi.**]—*Bull. Off. int. Epiz.* **50,** May. pp. 337-345. [Summary in English.] **1311**

39 salmonella serotypes have been isolated from poultry in this region. Ducks yielded 21, fowls 14, turkeys 2, and pigeons 2. Ducks and fowls are considered to be important in the epidemiology of human paratyphoid in Africa.
—M.G.G.

HUYGELEN, C., MORTELMANS, J. & VERCRUYSSE, J. (1958). Infekties door *Salmonella saint paul, Salmonella senegal, Salmonella vejle, Salmonella infantis, Salmonella braenderup* en *Salmonella thompson* als oorzaak van kuikensterfte. [**Unusual salmonella serotypes as the cause of chick mortality.**]—*Vlaams diergeneesk. Tijdschr.* **27,** 201-215. [In Flemish. Summaries in English, French and German.] **1312**

The serotypes named above were identified at the veterinary laboratory in Astridia, Ruanda-Urundi, as the cause of death in various batches of imported day-old chicks. Mortality was reduced by chlortetracycline or furazolidone treatment.—R.M.

VELHO, E. L. (1958). Contribution à l'étude de l'écologie des Salmonella des farines de poisson, en Angola. [**Salmonella organisms in fish meal in Angola.**]—*Bull. Off. int. Epiz.* **50,** May. pp. 330-336. **1313**

The incidence of salmonella in batches of fish meal samples in Angola varies between 8% and 40%. Salmonella was isolated from 26 of 161 samples of faeces from fishery workers, from the intestine of 2 of 7 birds, and from 2 of 20 batches of house-flies, but not from 17 rats from fishing ports, nor from freshly caught fishes and crabs. Of the 30 strains isolated 21 belonged to group E, 5 to group C, and 4 to group B.
—M.G.G.

EDWARDS, P. R. (1958). **Salmonellosis: observations on incidence and control.**—*Ann. N.Y. Acad. Sci.* **70,** 598-613. **1314**

A survey, with a list of 160 refs., by a well-known worker on salmonellosis. E. surveyed the incidence of outbreaks associated in the U.S.A. with food poisoning and made comparisons with experience in Gt. Britain. He discussed infection in each of the farm animals concerned in food production and outlined measures for control of the infections.—W.A.P.

I. HAMMER, D., GOEBEL, F., WESTPHAL, O., SIEVERS, K. & LÜDERITZ, O. (1958). Verhalten der Körpertemperatur und des weissen Blutbildes vom Pferd nach Injektion bakterieller Lipopolysaccharide. [**Behaviour of the body temperature and white blood picture of horses after injection of bacterial polysaccharide.**]—*Z. Naturf.* **13b,** 561-565. **1315**

II. LÜDERITZ, O., HAMMER, D., GOEBEL, F., SIEVERS, K. & WESTPHAL, O. (1958). Die Inaktivierung der endotoxischen Wirksamkeit bakterieller Lipopolysaccharide in Serum, Plasma und Vollblut vom Pferd. [**Inactivation of the endotoxic activity of bacterial lipopolysaccharide in serum, plasma and whole blood of horses.**]—*Ibid.* 566-571. **1316**

III. WESTPHAL, O., HAMMER, D., LÜDERITZ, O., NOWOTNY, A., EICHENBERGER, E. & GOEBEL, F. (1958). Die Inaktivierung der endotoxischen Lipoid-Komponente (Lipoid A) bakterieller Lipopolysaccharide durch Pferdeserum. [**Inactivation of the endotoxic lipoid component of bacterial lipopolysaccharide by horse serum.**]—*Ibid.* 572-575. **1317**

I. Horses were examined during 10 hours

after i/v inj. of 1–20 μg. lipopolysaccharide from *S. abortus-equi* ("Pyrexal"). The minimum pyrogenic dose was 0·0004 μg./kg. body wt. At first there was a drop in the number of leucocytes. This was followed by slight leucocytosis. Lymphocytes decreased slowly to about half the original values. Lipopolysaccharide from *S. paratyphi B* caused reactions.

II. The endotoxic properties of 20μg. purified lipopolysaccharides from *S. abortus-equi* or *S. paratyphi B* were inactivated after contact with 1 ml. of horse serum or plasma for 12–24 hours at 37°C. Pyrogenic activity was reduced by half after incubation of 5–20 μg. polysaccharide with 1 litre fresh whole blood for 3–12 hours.

III. A lipoid ("lipoid A") was identified as the component of bacterial lipopolysaccharide responsible for its endotoxic properties.—R.M.

BOULANGER, P., SMITH, A. N. & GIRARD, A. (1958). **A note on the use of heparin in a whole-blood plate agglutination test for brucellosis.**—*Canad. J. comp. Med.* **22,** 313-318. [Summary in French.] **1318**

Difficulties have been experienced in handling range cattle and buffalo herds for the collection of specimens for serological diagnosis of brucellosis and holding the animals in corrals pending the test results. A modified plate-test for rapid diagnosis using heparinized blood is described. The test results as compared with the standard tube and plate agglutination tests were satisfactory. It was believed that this method of testing would permit release of negative animals with only a small number of reacting animals having to be retained for further laboratory confirmatory tests.—R. V. L. WALKER.

HILL, W. K. W. (1958). Het serologisch routine-onderzoek ter vaststelling van brucellose in Nederland. **[Routine serological tests for bovine brucellosis in the Netherlands.]**—*Tijdschr. Diergeneesk.* **83,** 689-710. [In Dutch. Summaries in English, French and German.] **1319**

H. described plate and tube agglutination, complement fixation and ring tests, and discussed their use in the forthcoming control scheme for bovine brucellosis in the Netherlands. When possible, a combination of two or more of these tests should be used to give greater diagnostic accuracy.—R.M.

ALEANDRI, M. & GARGANI, G. (1958). Ulteriori osservazioni sulla diagnosi sierologica di brucellosi nei tori. **[Observations on the serological diagnosis of brucellosis in bulls.]**—*Zooprofilassi* **13,** 531-538. **1320**

A second serological survey of bulls in the Florence Province was made in 1957 [for previous survey see *V.B.* **23,** 692]. The slow agglutination and the c.f. tests were applied to serum samples from 253 bulls. The frequency of agglutinating titres of 1:10–1:40 was high (62·23%), though lower than in the previous survey (86·98%). C.f. was positive at 1:8 with both antigens used, only in one animal (from a herd with long standing infection). There was no clinical evidence of infection. In view of the results of the serological tests during the two years it is postulated that agglutinating titres of 1:40 and under cannot be considered as diagnostic in the absence of other positive serological reactions (c.f. test, in particular), of clinical and bacteriological evidence of brucellosis. Such titres may be obtained in the initial or in the regressive phase of infection. Repeated tests in the course of a year will give an indication of the course of the disease.—T.E.G.R.

NIŽNÁNSKÝ, F., OFÚKANÝ, L. & KRČMÉRY, V. (1958). Priprava, biochemické vlastnosti a diagnostická hodnota rozličných brucelových alergenov. **[Preparation, biochemical properties and diagnostic evaluation of various brucella allergens.]**—*Čsl. Epidem. Mikrobiol. Imunol.* **7,** 321-325. [In Slovak. Summaries in English and Russian.] **1321**

Preparation of brucella polysaccharides by the method of Mosimann, Fuller & Diernhofer, and evaluation of various brucella allergens and products of the acid hydrolysis method described by Ottosen, Plum and others, were discussed.

—E.G.

ULBRICH, F. & WIEGAND, D. (1958). Einfluss erhöhter Opsonocytophagenreaktion auf die Brucella-Antikörperbildung. **[Influence of increased opsonocytophagic reaction on formation of brucella antibodies.]**—*Arch. exp. VetMed.* **12,** 29-39. **1322**

S/c inj. of brucella serum in a calf from a brucellosis-free herd stimulated phagocytosis by neutrophile leucocytes of brucella organisms. Increased phagocytosis lasted about four weeks. Ingestion of colostrum during the first days of life produced a specific opsonocytophagic reaction, indicative of resistance to infection, persisting up to six months after birth. Passive immunity conferred by ingestion of colostrum appeared to prevent active antibody formation. Calves from infected herds should therefore not be immunized before the age of six months.

—E.G.

SCHAAL, E. (1958). Quantitative Untersuchungen über den Brucellengehalt der Milch genusstauglich zu beurteilender Rindereuter. **[Quantitative examination of the brucella content in milk of bovine udders declared fit for consumption.]** — *Berl. Münch. tierärztl. Wschr.* **71,** 290-292. [Summary in English.] **1323**

The existing law in Germany permits the use of udders for human consumption (in sausage), whether infected with brucellosis or not, provided that no gross lesions are present. S. isolated brucella from the milk of 29 of 80 infected cows sent for slaughter. The number of bacteria varied from a few to 10,000/ml. of milk and was directly related to the titre of milk agglutination tests. It thus appeared essential to condemn the udder of all cows with brucellosis. —R.M.

I. GREGORY, T. S. (1958). **Bovine brucellosis, with special reference to the duration of immunity following strain 19 vaccination.**—*Aust. vet. J.* **34,** 327-331. **1324**

II. CLARK, B. L. (1958). **Opening of discussion [on bovine brucellosis].**—*Ibid.* 331-334. **1325**

I. G. explains some of the difficulties in control and eradication. He states that it is not wise to distinguish between positive tests due to vaccination and those due to natural infection. He points out that a test can be negative even though the organism can be cultured from the blood and the udder. The difficulties in certifying exported or imported stock free from brucellosis are emphasized. Other fallacious negative results can be obtained with pregnant and aborting animals, and with others because of incomplete antibodies. G. considers, with other workers, that two or more doses of vaccine have no advantage over single doses.

II. C. describes the progress of eradication of brucellosis in Tasmania. Two methods are being used: vaccination in areas of high incidence, and test and slaughter in those where it is low. 6% of herds released from quarantine have recurrences within 12 months which are attributed to hidden carriers. It has become apparent that it is cheaper to slaughter a whole herd than to retest continually. The latter method, tried in 80 herds, took an average of 3½ years for eradication.

Only 0·3% of cattle now remain infected and only 28 of 9,000 herds are known to be infected. [Abstractor's note: Initial incidence was approx. 2·8%.]—L. LLOYD.

KOLOMAKIN, G. A. & SARSENOV, U. S. (1958). **[Results of immunization of cows with Strain 19 brucella vaccine.]**—*Veterinariya, Moscow* **35,** No. 10 pp. 32-33. [In Russian.] **1326**

On 122 farms containing over 140,000 cattle, the cows and calves were vaccinated annually with Strain 19 for 3 years. Abortions due to brucellosis fell from 2,735 in 1954 to 3, on one farm, in 1957. But 20 farms where animals were vaccinated once every two years were still infected with brucellosis after 5–6 years. 222 pregnant cows, vaccinated with Strain 19, were moved to 9 farms containing infected cattle; only 3 aborted. It is concluded that cattle vaccinated with Strain 19 are protected against brucellosis for not more than a year, but are at risk even in this period if they are in contact with infected cattle.—M.G.G.

PILZ, W. (1958). "Pecudin"—ein Prophylaktikum gegen die Brucella abortus-Infektion des Rindes? **["Pecudin" as a prophylactic in bovine brucellosis.]** — *Vet.-med. Nachr.* No. 2 pp. 53-61. **1327**

Preliminary tests *in vitro* and in g.pigs infected with *Brucella abortus* showed a certain activity on the part of "Pecudin" (N'–dichloracetyl–N'–phenylsemicarbazide). In a herd infected recently with brucellosis in which only 4 of the 19 animals were serologically negative, these 4 were given 20 g. daily as a drench for 3 months, a week of treatment being followed by a week without treatment. They calved normally, and bacteriological examination of the amniotic fluid in 2 did not reveal *Br. abortus*. Later, however, they developed positive blood titres. Eight of the 15 untreated animals aborted. In another infected herd 6 negative animals were treated with "Pecudin" for 2 calving periods, 5 g. being given daily in the food during the housing period. They calved normally and did not develop blood or milk titres. Of 9 untreated cows, 5 aborted. Treatment of 2 chronically infected cows had no effect on blood or milk titres nor did it prevent excretion of *Br. abortus* in the milk. It is concluded that "Pecudin" will prevent brucellosis in cattle during the period of administration, but will not cure infected animals. [See also *V.B.* **28,** 2419.]—M.G.G.

LINSERT, H. (1958). Serodiagnostische Untersuchungen auf Brucellose bei Tierärzten unter Berücksichtigung der Flockungsreaktion. **[Serological diagnosis of brucellosis in veterinary surgeons, with reference to the flocculation test.]** — *Zbl. Bakt. I. (Orig.)* **173,** 232-237. [Summaries in English, French, Spanish and Russian. English summary modified.] **1328**

Sera from 51 of 104 veterinary surgeons

showed positive reactions with *Br. abortus* to slow agglutination, complement fixation and flocculation tests. The slow agglutination technique alone is not sufficient for the determination of antibody levels: c.f. and flocculation tests are also necessary. The flocculation test proved to be a useful diagnostic test, especially if the slow agglutination and c.f. tests were negative.

BIGGI, P. (1958). L'aborto brucellare negli ovini e la sua patogenesi. [**Pathogenesis of brucellosis in sheep.**]—*Ann. Fac. Med. vet. Pisa* **10,** 97-112. [Summaries in English and French.] **1329**

Literature on the subject is reviewed and an account of an outbreak of brucellosis in a flock of sheep is given. The sheep grazed the same pasture as a herd of cattle [presumably brucella-free]. Abortions occurred about four months after the introduction of a batch of sheep some of which had a vaginal discharge and some were pregnant and subsequently aborted. All the ewes in the flock were served by the same three rams, two of which later reacted to the brucellin test. Of 119 sheep subjected to the brucellin test 48 reacted. Abortions continued among non-reactors. Agglutination tests and bacteriological examination of the milk and vaginal discharge were also carried out. Results, given in tabular form, are discussed and the following conclusions are drawn: brucella abortion occurs only when non-infected sheep are exposed to infection during pregnancy; in non-pregnant sheep infection by contact engenders resistance and parturition is normal even after re-infection; brucellosis in sheep follows the course described by Zdrodovskii (first stage with positive serological reactions at high titres and little or no allergic response; a second stage with weaker serological reactions and stronger allergic reactions; a third stage in which only the allergic reaction persists). In the summary it is stated that the causal organism was *Br. melitensis*.

—T.E.G.R.

BIGGI, P. (1958). Decorso dell'infezione brucellare in pecore sperimentalmente infettate dopo riposo sessuale. [**Course of brucella infection in sheep after sexual rest.**]—*Ann. Fac. Med. vet. Pisa* **10,** 113-116. [Summaries in English and French.] **1330**

After six months' sexual rest ten experimentally infected sheep (of which eight had aborted or delivered normally and two were virgin) were mated. Seven conceived and gave birth to live healthy lambs. Blood cultures from these animals at fortnightly intervals from the last month of pregnancy until slaughter (one month after parturition), and bacteriological and biological examinations of the milk and vaginal discharge at weekly intervals from parturition to slaughter were negative. Agglutinating antibodies persisted, at low titres, in four animals one of which was normal one month after parturition; in the other six reactions were alternately negative and positive at low titres (1:10–1:20); it appeared that pregnancy was responsible for positive agglutination, although at low titres; brucellin caused a slight, temporary increase in antibody titres. Allergic reactions persisted in 9 sheep. In three which had been excreting the organism for a longer period the intensity of the reactions was lower while serological response was positive at higher titres. Bacteriological examination of organs and lymph nodes was negative in the case of sheep giving normal births.—T.E.G.R.

VAN RENSBURG, S. W. J., HEERDEN, K. M., ROUX, D. J. & SNYDERS, A. J. (1958). **Infectious infertility in sheep.** — *J. S. Afr. vet. med. Ass.* **29,** 223-233. **1331**

Contagious epididymitis and vaginitis in sheep bears some clinical resemblance to the bovine condition. Two rams were experimentally infected with Australian *Brucella ovis* cultures, two with cultures isolated from semen of S. African field disease cases, and two with the untreated semen. Ewes and rams were readily infected by direct and indirect contact. All breeds appear equally susceptible. The best diagnostic method is the complement-fixation test on ram serum, but in the field, organisms can often be recognised in stained semen smears.

In late stages abscesses occur in the epididymis associated with the secondary activity of *Corynebacterium ovis*. 11·9% of 3,789 rams examined in a field survey were infected.

—F. L. M. DAWSON.

HOLLAND, J. J. & PICKET, M. J. (1958). **A cellular basis of immunity in experimental brucella infection.**—*J. exp. Med.* **108,** 343-359. [Authors' summary modified.] **1332**

*Brucella suis, abortus,* and *melitensis* multiplied extensively within normal rat, mouse, and g.pig monocytes maintained in cell cultures for 3 days. Intracellular growth of brucella had no observable toxic effects on most monocytes, although many of the cells became completely engorged with brucella within 3 days. Non-smooth brucella and Strain 19 multiplied slowly within normal monocytes. In contrast, "immune" monocytes, *i.e.*, those derived from animals previously infected with smooth brucella, greatly restricted the intracellular growth

of smooth and non-smooth brucella, and Strain 19. Growth of smooth brucella within either normal or "immune" monocytes, was not influenced by addition of brucella antiserum to the culture medium. Studies of the survival of brucella in the spleens of normal and vaccinated mice gave strong support to the *in vitro* demonstrations of acquired "cellular immunity".

CARRÈRE, L., ROUX, J. & SERRE, A. (1958). Antigènes des *Brucella*. I. Généralités. Étude des endo-antigènes et des antigènes glucido-lipido-polypeptidiques par les méthodes de diffusion en gel. **[Brucella antigens. I. Agar diffusion studies.]** — *Ann. Inst. Pasteur* **95,** 588-603. [English summary modified.] **1333**

*Br. melitensis, Br. abortus* and *Br. suis* endo-antigens were prepared by grinding or by means of ultrasonic waves, then by centrifugation. Gluco-lipido-polypeptide (GLP) antigens were prepared by means of trichloracetic acid. Unsaturated anti-*melitensis,* anti-*abortus* and anti-*suis* sera were used. The diffusion techniques used were the double diffusion method in Petri dishes (Ouchterlony) and the slide microdiffusion method (Scheidegger). Study of the precipitation lines showed that: (1) Antigens extracted by grinding or by ultrasonic waves are identical. (2) *Br. melitensis, Br. abortus* and *Br. suis* endo-antigens are identical; they constitute the antigenic fraction common to all species of the *Brucella* genus. (3) GLP antigens differ from the above antigens; they do not possess any common fraction with them. *Melitensis* and *abortus* GLP antigens are identical. *Suis* antigen is different and allows the *suis* antigenic type to be distinguished from the *abortus* antigenic type.

NIŽNÁNSKÝ, F. & KRČMÉRY, V. (1958). Naše poznatky zo študia enzymológie brucelových kmeňov. **[Enzymological study of brucella strains.]**—*Čsl. Epidem. Mikrobiol. Imunol.* **7,** 252-256. [In Slovak. Summaries in English and Russian.] **1334**

The authors studied catalase, urease, lipase, mylase, phosphatase and peroxydase activity of *Brucella abortus, Br. melitensis* and *Br. suis* strains. Details of average values of some enzymic reactions characteristic for the three organisms are given in a table.—E.G.

PARNAS, J., CHODKOWSKI, A., LAZUGA, K. & KOZICKA, A. (1958). Experimentelle Untersuchungen über die Immunobiologie der Brucellose und die Wahl der Stämme für einen lebenden Impfstoff für Menschen. **[Experimental studies on the immunobiology of brucellosis and the choice of a strain suitable as a live vaccine for human beings.]** —*Z. ImmunForsch.* **116,** 335-371. **1335**

Immunological, bacteriological and histological methods were used to compare the virulence and antigenicity of 9 strains of brucella, including Strains 19, 45/20, 519, 544 and PD. Strain PD was isolated by the authors and its properties were intermediate between those of Strains 519 and 45/20; it was similar to the Russian Strain BA which is used for immunizing human beings. The authors therefore considered Strain PD to be suitable for human use, and further studies on this are in progress.—R.M.

STRAUCH, D., WINTER, H. & SCHMIDT, W. (1958). Klinische und bakteriologische Untersuchungen über das Versagen eines Extraktes aus *Hieracium Pilosella* bei der Behandlung der Brucellosen. **[Failure of an extract of *Hieracium pilosella* in treatment of brucellosis.]** — *Arzneimittelforsch.* **8,** 564-566. **1336**

An extract of hawkweed, recommended by Greib & Duquénois [*V.B.* **25,** 310] for the treatment of brucellosis, failed to influence the course of *Br. melitensis* or *Br. abortus* infection in 12 human beings.—R.M.

MCKEEVER, S., SCHUBERT, J. H., MOODY, M. D., GORMAN, G. W. & CHAPMAN, J. F. (1958). **Natural occurrence of tularemia in marsupials, carnivores, lagomorphs and large rodents in southwestern Georgia and northwestern Florida.** — *J. infect. Dis.* **103,** 120-126. **1337**

Serum agglutination tests for *Brucella tularensis* infection were positive for 25% of 618 raccoons, 24·3% of 136 gray foxes, 22% of 82 wildcats, 21·5% of 311 striped skunk, one of 8 spotted skunk, 3 of 26 red foxes, 11·9% of 554 opossums, 2 of 32 stray cats, one of 40 fox squirrels, and one of 188 cottontail rabbits. Virulent *Br. tularensis* was isolated from the spleen of an opossum. In all, of 2,004 mammals of 13 species, 344 (17·2%) were positive.—M.G.G.

VAN DER HOEDEN, J. (1958). Leptospires et leptospiroses animales en Israël. **[Leptospirosis in animals in Israel.]**—*Bull. Off. int. Epiz.* **50,** May. pp. 274-282. [Summary in English.] **1338**

Outbreaks of leptospirosis in cattle and goats in central and northern Israel were caused by *L. grippo-typhosa.* Serological evidence of this infection was found in horses, donkeys, mules, dogs, and a camel. In southern Israel leptospirosis in cattle was due to *L. canicola.*

The incidence of *L. canicola* infection in dogs is about 46%. Positive titres were found in clinically healthy horses, and outbreaks of the disease occurred in pigs. The vole *Microtus guentheri* is the reservoir for *L. grippo-typhosa;* and dogs and jackals harbour *L. canicola.* Hedgehogs yielded *L. grippo-typhosa, canicola, ballum* and *mini,* and *L. canicola* was isolated from ticks on a hedgehog. *L. icterohaemorrhagiae* was isolated from *Rattus norvegicus* in sea ports.—M.G.G.

TURNER, L. W., ROBERTS, C. S., WIGGINS, A. M., ALEXANDER, A. D. & MURPHY, L. C. (1958). *Leptospira canicola* **infection in a newborn calf.**—*Amer. J. vet. Res.* **19,** 780-784. [Authors' summary modified.] **1339**

A leptospire isolated from the urine of a sick calf, 2 days old, was identified by cross-agglutination and agglutinin-absorption as a homologous serotype of *L. canicola.* Specific antibodies were later demonstrable in the calf and its dam. The infection in the calf was probably contracted *in utero.* One abortion had occurred in the herd and serological tests indicated that other members of the herd may have been infected with *L. canicola.*

SESSI, P. (1958). Sulla diffusione delle leptospirosi degli ovini e caprini in Toscana. **[Incidence of leptospirosis of sheep and goats in Tuscany, Italy.]** — *Ann. Fac. Med. vet. Pisa* **10,** 117-132. [Summaries in English and French.] **1340**

Serum samples from 1,077 sheep and 31 goats were subjected to agglutination-lysis with live cultures of 11 serotypes of leptospira. Positive reactions (1:200 and over) were obtained with 132 samples from sheep and 2 from goats, as follows: *L. icterohaemorrhagiae,* 57; *L. canicola,* 5; *L. pomona,* 4; *L. grippotyphosa,* 1; *L. australis,* 28; *L. sejroe* and *L. saxkoebing,* 28; *L. ballum,* 6; several serotypes, 3.—T.E.G.R.

MCKEEVER, S., GORMAN, G. W., CHAPMAN, J. F., GALTON, M. M. & POWERS, D. K. (1958). **Incidence of leptospirosis in wild mammals from southwestern Georgia, with a report of new hosts for six serotypes of leptospires.**—*Amer. J. trop. Med. Hyg.* **7,** 646-655. **1341**

Leptospires were cultured from kidney tissue from 44 of 820 trapped mammals. They included *L. australis A, L. grippo-typhosa* and organisms of the *mitis-hyos* and *hebdomadis* groups. Hosts not previously recorded were the gray fox (*L. ballum*); raccoon (*L. ballum, pomona, australis A, grippo-typhosa*); striped skunk and wildcat (*L. ballum, pomona*): opossum (*L. mitis-hyos* group).—R.M.

BABUDIERI, B. (1958). **Animal reservoirs of leptospires.**—*Ann. N.Y. Acad. Sci.* **70,** 393-413. **1342**

B. discussed in some detail factors that concern the excretion of leptospires of different species in the urine of infected animals, dealing with the importance of the pH of the urine and with circumstances in which the organisms gain access to the tissues of various organs and finally the kidneys; also factors affecting their survival in mud, soil etc.

He referred to literature on circumstances in which arthopods can carry the infection. Most of the work on this point was done in the early days of leptospiral knowledge when the epidemiology of the subject was not well understood. Arthropods are not important in direct transmission.

He gave a detailed account of vertebrate carriers. Of interest was a quick development of large rat populations in localities in Alaska at the end of the second war following demobilization and the abandoning of large concentrations of food supplies. Small adjacent towns suffered massive invasion and considerable numbers of cases of leptospirosis occurred. The paper as a whole and this section in particular has a mass of detail on a multiplicity of factors that may or may not affect the life of pathogenic leptospires in a variety of circumstances.—W.A.P.

GOCHENOUR, W. S., JR., GLEISER, C. A. & WARD, M. K. (1958). **Laboratory diagnosis of leptospirosis.**—*Ann. N.Y. Acad. Sci.* **70,** 421-426. **1343**

A detailed discussion of the merits and defects of laboratory tests for leptospira infection that have been used in modern times, with emphasis on methods of choice. The Division of Veterinary Medicine, Walter Reed Army Institute of Research (WRAIR), Washington, D.C., is now the Leptospiral Reference Laboratory for North America.

The agglutination-lysis test of Schüffner & Mochtar is the most widely used and is the serological method against which the others have been evaluated. As are all the leptospiral agglutination tests it is highly serogroup specific. Its use requires an adequate battery of antigens, there is the hazard in using living antigens, the method is laborious and there are problems in standardizing antigen sensitivity.

The microscopic agglutination test, employing killed antigens, eliminates infection hazards

and can be used with sera too heavily contaminated for test by the lysis method. In compared series of tests by different laboratories there was close agreement.

Macroscopic plate agglutinating antigens have not yet been adequately evaluated.

The capillary tube agglutination test of Stoenner has given good correlation with the live antigen microscopic agglutination test.

All of the above tests are highly serogroup specific. However, paraspecific responses or cross reactions with heterologous serogroups are frequently observed at levels higher than those of the homologous organism. Thus, while presumptive evidence of the identity of a leptospire may be afforded by the host response, definitive establishment of its identity can be effected only by its isolation and characterization.

The complement-fixation test of Randall, Wetmore & Warner, employing sonically disrupted leptospires as antigens, is the oldest of the genus-specific serological tests. It has yielded good results in the diagnosis of human leptospirosis, but the results have been disappointing with animal sera. Its advantages are simplicity of performance and a small test battery of antigens. A disadvantage is that, in addition to that noted above, being genus specific, it affords no information as to the presumptive identity of the infecting leptospire.

The haemagglutination test of Chang, employing erythrocyte-sensitizing substances, and the haemolytic test of Cox are both genus specific. Both tests have given good results with human sera, but disappointing results with animal sera.

The authors concluded:—"Existing knowledge of leptospiral antigen-antibody reactions does not encourage hope of reducing significantly the time required for serologic confirmation of the diagnosis of leptospirosis. More promise lies in the development of methods for the earlier demonstration of leptospires".

—W.A.P.

FISCHER, G. W., POWERS, D. K. & GALTON, M. M. (1958). **Studies of technics for the isolation of leptospires. I. The suitability of 1 to 2 day old baby chicks as compared to hamsters for the isolation of various leptospiral serotypes.** — *J. infect. Dis.* **103,** 150-156. [Authors' summary modified.] **1344**

89 chicks and 89 hamsters were experimentally infected with 16 strains of leptospira of 14 serotypes. Leptospira were recovered from 55 (67%) of the hamsters and 46 (51%) of the chicks. During field investigations 110 specimens, from man, dogs and cattle, were injected into chicks or hamsters. Leptospira were recovered through hamsters from 5 dogs, and through chicks from 2 cows, 3 dogs, and 1 human case. The period of leptospiraemia varied in the test animals; some developed leptospiraemia from the 1st to the 4th day, others between the 5th and 9th day and others between the 15th and 19th day after inoculation. Serological responses were unpredictable in chicks, but hamsters usually developed a titre if infection became established. Mortality was 20% in chicks and 39% in hamsters, during a 28-day observation period and 5 bleedings by cardiac puncture.

KEMENES, F. (1958). Die durch pathogene Leptospiren verursachte Hämolyse und ihre pathologische Bedeutung. **[The significance of haemolysis caused by pathogenic leptospira.]**—*Acta vet. hung.* **8,** 143-150. [In German.] **1345**

Cultures, 2–3 weeks old, of *Leptospira pomona, L. grippo-typhosa* and *L. canicola* contained a toxin which lysed ox, sheep, goat and buffalo r.b.c. At 4°C. it was ineffective and at this temp. it kept for several weeks. At 38°C. its action was strongest. Its effect on r.b.c. of non-ruminants and fowls was minimal. Cultures of *L. icterohaemorrhagiae, L. hyos* and *L. sejroe* did not produce this toxin. The haemolytic action of the toxin was strongly inhibited by serum of adult animals, but only very slightly by that of new-born animals and foetuses. Intravenous inj. of 150–220 ml. of leptospira-free culture filtrate of *L. pomona, L. grippo-typhosa* and *L. canicola* killed lambs within 8–16 hours, death being preceded by dyspnoea and haemoglobinuria. Small daily doses produced after 5–7 days anaemia, icterus and cachexia. Puppies were not susceptible, even to high doses. Injection of *L. hyos* culture filtrate did not affect lambs. Leptospiral abortion in ruminants was stated to be the result of haemolysis in the foetus brought about by the action of the toxins, whereas in sows it was due to direct foetal infection with leptospira.—E.G.

MORTER, R. L., LANGHAM, R. F. & MORSE, E. V. (1958). **Experimental leptospirosis. VI. Histopathology of the bovine placenta in *Leptospira pomona* infections.**—*Amer. J. vet. Res.* **19,** 785-791. [Authors' conclusions modified.] **1346**

One of 7 pregnant heifers infected with *L. pomona* aborted a 7-month foetus 29 days after infection. Leptospires were not isolated from the aborted foetus or from any of the 6 foetuses, 4

to 7 months old, which were viable at the time the dams were killed. Direct infection of the foetus did not appear to have been responsible for abortion. A series of histopathological changes was found in the cotyledons, which could interfere with the development of the foetus and result in foetal death and abortion.

GILLESPIE, R. W. H. & KENZY, S. G. (1958). **Immunization of cattle against leptospirosis. II. Further observations on duration of immunity induced by vaccination.** — *Vet. Med.* **53,** 611-617. [Authors' summary modified.] **1347**

Heifers inoculated with one of 3 *L. pomona* vaccines when 6–8 months old had some degree of protection when challenged 13 to 15 and 18 to 20 months after vaccination. A correlation seemed to exist between the serological response to vaccination and the degree of immunity. When infection developed upon challenge it was mild and the cattle either did not excrete leptospires or excreted them in very small numbers. One abortion followed infection of an unvaccinated heifer in the eighth month of gestation. Other pregnant heifers, vaccinated and unvaccinated, did not abort.

JOHNSTON, R. V. & WILLIAMS, H. W. (1958). **The development and evaluation of a new immunizing agent for enterotoxemia in sheep.** — *Sthwest. Vet.* **12,** 17-21. [Authors' summary modified.] **1348**

A new alum precipitated *Clostridium welchii,* Type D, toxoid, propagated in a toxicogenic medium, produced a good antibody response in rabbits and lambs. A single 5 ml. dose appears to afford a good degree of protection for at least one year. The antigenic response of unweaned lambs and parasitized animals, however, was poor. Some evidence was obtained that unweaned lambs may be protected by vaccinating the ewe during pregnancy.

TE PUNGA, W. A. & BOYES, B. W. (1958). **Vibriosis in cattle. Part 1: Transmission studies. Part 2: Treatment of vibriosis in dairy cows.** — *N. Z. vet. J.* **6,** 147-155. [Authors' summaries modified.] **1349**

I. Transmission of *V. fetus* by natural service from bull to cow, and cow to bull, was described. Infection was accomplished by adding cultures of *V. fetus* to semen before insemination. No visible abnormalities accompanied infection, apart from a slight change in quality and quantity of mucus. It is suggested that pathogenicity may vary with route of infection.

II. Experimental *V. fetus* infections were successfully treated by intra-uterine irrigation with streptomycin up to 96 hours after infective service. Established infections can be treated successfully by this method. Intra-vaginal therapy with pessaries containing streptomycin and penicillin did not influence the course of infection.

EIDE, G. W. & HELLE, O. (1958). **The persistence of a genital vibrio infection in a herd of sheep after an outbreak of vibrionic abortion.** —*Amer. J. vet. Res.* **19,** 887-889. [Authors' summary modified.] **1350**

Systematic investigation was carried out in a flock of sheep for 18 months after an outbreak of spontaneous vibrionic abortion. Vibrios were isolated from vaginal mucus and from material taken at normal parturitions. During this period there were no clinical signs of genital vibriosis.

The investigation seems to show that the vibrios isolated at the time of the abortions and those isolated during the subsequent 18 months belong to the same strain; however, the pathogenicity is lower in the last isolated vibrios.

The investigation shows that animals in the flock may carry vibrios long after abortions cease, even when there are no clinical signs of infection in the flock.

SCHARF, W. (1958). Serologische Untersuchungen über Vibrionen. [**Serological studies of vibrios.**] — *Inaug. Diss. Munich* pp. 56. **1351**

S. discussed serological differentiation of vibrios and their antigenic structure, diagnostic value of the agglutination reaction and biochemical differentiation and pathogenicity of bovine genital vibrios. He examined 33 strains in respect of serological behaviour, catalase activity and sulphuretted hydrogen formation. These strains fell into three groups: *V. fetus; V. bubulus*; and a third group, probably saprophytic, isolated from puddles, liquid manure, faeces, etc. *V. fetus* and *V. bubulus* were agglutinated only by their specific antisera. *V. fetus* cultures produced catalase, but not $H_2S$, *V. bubulus* $H_2S$, but not catalase. Both these groups had certain antigenic components in common. Strains in the third group were neither related serologically among themselves, nor with the other two groups. Some produced catalase, some $H_2S$. It was concluded that differentiation by biochemical methods alone is inadequate and that serological tests should always be carried out.—E.G.

THOMAS, J. H. (1958). **A simple medium for the isolation and cultivation of *Fusiformis nodosus*.**—*Aust. vet. J.* **34,** 411. **1352**

A successful medium for the isolation and cultivation of *F. nodosus* is described. The medium comprises "Lemco" broth with agar and 2% by weight of ground horn collected from normal sheep's hooves. The horn particles do not function by absorption of a growth-inhibitor and the growth requirements of *F. nodosus* are not satisfied by the soluble fraction of the ground horn.— D. F. STEWART.

ROCHE, D. (1958). **Ovine posthitis.**—*Aust. vet. J.* **34,** 300. **1353**

R. reports the successful use of 20% Cetrimide foot rot paint as a medicament for ovine posthitis. It acts as a lubricant for removing putrid aggregations and as an emollient to the mucous membranes.—L. LLOYD.

I. VALOTTA, J. R. (1958). Acción "in vitro" de la piocianasa frente a diversas cepas microbianas. **[Action of pyocyanase on some bacteria *in vitro*.]**—*Rev. Vet. Milit., B. Aires* **5,** 247-250 & 252. [Summary in English.] **1354**

II FERNÁNDEZ, H. M. E. (1958). Resultados terapéuticos de la piocianasa empleada en el tratamiento de abscesos. **[Treatment of abscesses with pyocyanase.]** — *Ibid.* **6,** 26-27. **1355**

I. The *in vitro* action of pyocyanase on 30 bacterial strains was studied. There was a slight inhibition of *Corynebacterium ovis, E. coli,* paracolon bacilli, *Pasteurella bovis* and *Past. septica.* The action on the other strains was constant throughout the experiment. There was complete inhibition of *B. anthracis,* staphylococcus, shigella, proteus and streptococcus; *B. subtilis,* salmonella and *Pseudomonas pyocyanea* were not inhibited.

II. In five horses multiple abscesses resistant to treatment were curetted and drained; pyocyanase was then injected around the lesions and also applied topically. Good results were obtained in all cases.—T.E.G.R.

BENEDICT, R. G., CORMAN, J., SHARPE, E. S., KEMP, C. E., HALL, H. H. & JACKSON, R. W. (1958). **Preservation of microorganisms by freeze-drying. I. Cell supernatant, Naylor-Smith solution and salts of various acids as stabilizers for** *Serratia marcescens.* **—** *Appl. Microbiol.* **6,** 401-407. **1356**

Bacteria harvested from skim-milk protopeptone glucose medium after 22 hours' growth showed an unusually high initial survival when dried in their own supernatant culture liquor. Sodium salts of various acids gave maximum drying protection at concentrations between 0·5 and 0·1 M in suspensions of 200,000 million cells/ml.—R.M.

GERWING, J. & LONG, D. A. (1958). **The influence of bacterial exotoxins on the non-protein -SH content of the tissues of different animal species.**—*Biochem. J.* **70,** 652-655. **1357**

There is a great deal of indirect evidence to suggest that corticotrophin and cortisone depress sensitivity to tuberculin in the skin of the g.pig by influencing –SH metabolism. These findings gave rise to the hypothesis that cortisone interfered with the metabolism of glutathione in the course of a general interference with protein synthesis. If this hypothesis is true, one might expect to find a subnormal level of non-protein–SH in the carcass of animals under stress. The hypothesis is supported to the extent that this effect has now been found.—R.M.

MARCUS, S., ANSELMO, C. & PERKINS, J. J. (1958). **Studies on bacterial pyrogenicity. I. Quantitative basis.**—*Proc. Soc. exp. Biol., N.Y.* **99,** 359-365. [Authors' summary modified.] **1358**

Multiple tests on solutions to which have been added known numbers of various bacterial species, suggest that 1,000 or more organisms per ml. must be present before the U.S.P. rabbit pyrogen test will yield a positive result. A simple culture procedure was suggested as a screening test for pyrogens in solutions to be employed for parenteral infusion.

REED, R. E. (1958). **Canine coccidioidomycosis.** — *Sthwest. Vet.* **12,** 26-32. [Author's summary modified.] **1359**

*Coccidioides immitis* infection is a common and often serious disease of dogs in the southwestern States of the U.S.A. Most frequently noted signs are chronic cough, persistent fever, gradual emaciation and lameness. Granulomatous lesions are commonest in the lungs and thoracic lymph nodes but may be found in any tissue of the body. Diagnosis is aided by radiography, serology, testing for coccidioidin sensitivity and culture of the fungus from exudates or biopsy specimens. The disease is not communicable among dogs nor to the owner, but animals discharging sporangia from open lesions should be destroyed.

LAGACÉ, A. (1957). **Toxic and therapeutic evaluation of stilbamidine and hydroxystilbamidine in canine blastomycosis.** — *Dissertation, Ohio* pp. 240. [Abst. from abst. in *Diss. Abstr.* **18,** 1065. (1958).] **1360**

31 dogs were infected with *Blastomyces der-*

*matitidis* from a spontaneously infected dog by s/c, i/v or intratracheal inoculation. Six dogs were treated with decreasing daily doses of stilbamidine (1, 2 and 0·5 mg./kg. for the first three days, 0·5 mg./kg. on alternate days thereafter). Nine dogs were treated with increasing daily doses of hydroxystilbamidine (1, 2 and 3 mg./kg. for the first 3 days, then 1·5 mg./kg. on alternate days. [The method of administration is not given in the abstract, but it was probably intramuscular.] No toxic signs were seen. Treatment had no influence on the duration of survival, compared with 10 untreated dogs, and infection of the central nervous system and eyes was commoner in treated dogs than in untreated dogs. It was more difficult to recover the fungus from blood, sputum and faeces of treated than untreated dogs.—R.M.

LAUDER, I. M. & O'SULLIVAN, J. G. (1958). **Ringworm in cattle. Prevention and treatment with griseofulvin.** — *Vet. Rec.* **70,** 949-951. [Authors' summary modified.] **1361**

Daily administration of griseofulvin *per os* for 5 weeks from the day of inoculation with *Trichophyton verrucosum* prevented the establishment of infection in 4 calves.

Five weeks after inoculation 3 untreated calves had developed mature ringworm lesions. Two of these were then given griseofulvin orally for 3 weeks and the remaining one left untreated. The latter continued to have lesions for more than 3 months while the 2 treated animals showed no fungi histologically after 2 weeks, and at the end of 3 weeks new hair was growing strongly and the typical ringworm crusts were no longer present.

NOSKOV, A. I. (1958). **[Treatment of Trichophyton infection in calves by spraying with alkaline solution of formaldehyde.]**—*Veterinariya, Moscow* **35,** No. 6 pp. 55-56. [In Russian.] **1362**

On 6 farms 1,115 calves and heifers, 200 of them with ringworm, were sprayed with a solution of 0·4% formaldehyde plus 0·5% caustic soda under 2·5 atmospheric pressures. For each calf 400–500 ml. of solution was used and the skin remained damp for 2 hours after treatment. No toxic signs or skin damage were observed. Treatment was done in summer and was repeated a week later. Infected calves were isolated and skin lesions were dressed with an emulsion of 5% formaldehyde and 5% "SK–9" in fish-liver oil; this dressing was repeated after 2–3 days. Simultaneously the buildings were disinfected with a mixture of 2% formaldehyde and 1% caustic soda and walls were whitewashed. It was claimed that ringworm was completely eradicated by these methods.

—E. L. URCH.

MAGLIONE, E. (1957). Contributo allo studio della aspergillosi aviare. **[Aspergillus infection in fowls.]**—*Ann. Fac. Med. vet. Torino* **7,** 47-55. [Summaries in English and French.] **1363**

Of 32 fowls injected i/v with spores of *Aspergillus fumigatus,* 12 receiving 1,500,000 spores and over died. In a second experiment 50 fowls were injected with 1,500,000 spores each and in a third 50 birds were injected with 10,500,000 spores each. In each series 10 birds were kept as controls and the rest, in groups of 10, were treated with various antibiotics. There was no significant difference in mortality between treated birds and controls. It is considered that certain factors (climate, breed, diminished virulence of the fungus) may affect experimental infection.—T.E.G.R.

NOVAL, J. J. (1958). **The decomposition of keratin by microorganisms.** — *Dissertation, Rutgers Univ.* pp. 216. [Abst. from abst. in *Diss. Abstr.* **19,** 219-220. (1958).] **1364**

Wool and other keratinous substances could be sterilized by ethylene oxide vapour without detectable change in the chemical composition or enzymic resistance of keratin. Strains of *Streptomyces fradiae* were found to be unique in their ability to digest keratin. The author claimed that this was the first convincing proof that any micro-organism could digest native keratin.—R.M.

RAZIN, S., COHEN, A. & ROZANZKY, R. (1958). **Antimycotic effect of spermine.**—*Proc. Soc. exp. Biol., N.Y.* **99,** 459-462. [Authors' summary modified.] **1365**

Spermine inhibited growth of several species of yeasts, *Saccharomyces* and *Debaryomyces* species being the most sensitive. The antimycotic effect was more pronounced at an alkaline pH and was antagonized by inorganic salts. The adsorption of spermine by yeast cells was significantly smaller than by *Staph. aureus.*

Spermine retarded the death rate of washed cells of *S. cerevisiae* suspended in 0·05 M tris–(hydroxymethyl)–aminomethane buffer. A pronounced killing effect of spermine was observed when glucose was added to the buffer.

PRIESTLEY, F. W. (1958). **United Nations. Report to the Government of the Sudan on contagious bovine pleuropneumonia.** pp. 11.

Rome: Food and Agriculture Organization of the United Nations. [FAO Report No. 854.] **1366**

An account of experimental work on survival of the causal organism of bovine contagious pleuropneumonia, the use of gum arabic as an adjuvant in vaccines, duration of immunity following vaccination and on the use of the vaccine simultaneously with rinderpest vaccine. The work was done in the Republic of the Sudan between November 1957 and July 1958.

PRICE, J. I. (1958). **Morphological and cultural studies of pleuropneumonia-like organisms and their variants isolated from chickens.**—*Thesis, Cornell* pp. 54. **1367**

These studies were to determine the nature of the pleuropneumonia-like organisms (PPLO) isolated from chickens affected with chronic respiratory disease (CRD). The PPLO cultures were transferred 250 times in a suitable broth (containing thallous acetate) to establish viability of the cultures. During the trials, attempts were made to standardize the morphological characteristics of the organisms. Experiments were conducted to revert the typical PPLO colonies to the granular type of the L forms of bacteria and then to bacterial cells. The reverted bacteria were then studied biochemically in an attempt to establish their true identity. The bacteria again reverted to their original PPLO forms.— HERBERT L. GILMAN.

SHEHATA, A. M., EL-TABEY. (1958). **Effect of different rations on the number of free ruminal bacteria in sheep.**—*Appl. Microbiol.* **6,** 422-426. **1368**

The author studied the effect of 8 different rations in Egyptian (Rahmani) sheep. He suggested that diurnal variations in the rumen bacteria provide evidence of the nutritional value of different feeds.—R.M.

GRAY, F. V. (1958). **Bacterial synthesis of butyric acid in the rumen of the sheep.**—*J. Bact.* **76,** 335-336. **1369**

An organism resembling *Clostridium kluyveri* was isolated from rumen fluid of sheep. It produced butyric acid when grown in a medium containing ethyl alcohol and acetic acid.—R.M.

GRAY, F. V. & WELLER, R. A. (1958). **The fermentation of hemicellulose by washed suspensions of rumen bacteria.**—*Aust. J. agric. Res.* **9,** 797-801. [Authors' summary.] **1370**

Fermentation of hemicellulose by washed suspensions of microorganisms from the rumen of the sheep produced approximately equal proportions of acetic and propionic acids, together with a small amount of butyric acid. These findings are discussed with reference to previous work with growing cultures and to the organisms responsible for hemicellulose fermentation in the rumen.

*See also abstr.* **1639** (report, Canada); **1642** (report, British Guiana); **1643** (report, British Honduras); **1644** (report, Grenada); **1645** (report, Zanzibar); **1646** (report, Belgian Congo).

## DISEASES CAUSED BY PROTOZOAN PARASITES

GREAT BRITAIN. (1958). **Tsetse Fly and Trypanosomiasis Committee Report for 1956-1957.**—*Colonial Research* 1956-57. pp. 287-302. [London: Colonial Office.] **1371**

The main activities have been in the field of chemotherapy. The importance of chemotherapy was emphasized by the holding of a conference of veterinarians to discuss the most efficient means of arranging and co-ordinating trials of new drugs in Africa. Notable amongst the new prophylactic drugs are the suramin complexes which have been developed at the West African Institute for Trypanosomiasis Research.

Jackson's theory that the hungry tsetse fly actively hunts for its food rather than sits waiting for a host animal to appear has been confirmed.

In the field of chemo-prophylaxis and chemotherapy, experiments in small animals using a variety of trypanocidal drugs and their suramin complexes have continued. Both small animals and cattle tolerate much larger doses when given in suramin complex form. In the case of antrycide methyl sulphate, the maximum tolerated was eight times greater. Of the various other drugs or drug–suramin complexes tested, the most promising seemed to be ethidium bromide suramin complex. The suramin complexes were so promising that, with the agreement of the Colonial Office, patents have been taken out on behalf of the Institute by the National Research Development Corporation.

Immunity studies on the local breeds of cattle and game are being continued. Laboratory and field investigations are also being maintained on insect vectors.

The territorial departments of the African Administration continue to play an important role in tsetse fly and trypanosomiasis research

and much valuable work has been carried out during the year.

In Northern Rhodesia trypanosomiasis research has been almost entirely confined to drug trials and prophylaxis, whereas in Northern Nigeria the department has been pursuing a vigorous programme of research into cattle trypanosomiasis.

Eight papers are listed as having been published or prepared for publication during the year.— D. S. RABAGLIATI.

ROBSON, J. (1958). **A field trial of prophylactic drugs against trypanosomiasis in zebu cattle.** —*Vet. Rec.* **70,** 925-927. [Author's summary modified.] **1372**

Immature zebu bullocks treated with a single dose of prothidium or of ethidium suraminate were compared with similar cattle treated with antrycide prosalt repeated at 2-monthly intervals, in an area of very light tsetse density. The mean monthly apparent density of *G. morsitans,* over a period of 14 months prior to and including some of the time the cattle were exposed, was 1·47.

Prothidium at a dosage of 2 mg. per kg. appeared, under these conditions, to be the best prophylactic drug of those used because, while ethidium suraminate at 5 mg., 10 mg., and 15 mg. per kg. gave almost equal protection, the local reactions caused by it were very severe.

Antrycide prosalt given at 2-monthly intervals protected the cattle completely.

Local reactions occurred in all treated animals, but were most severe in the ethidium suraminate groups. Of the controls, which were introduced at intervals throughout the experiment, 41·4% became infected.

WRAGG, W. R., WASHBOURN, K., BROWN, K. N. & HILL, J. (1958). **Metamidium: a new trypanocidal drug.**—*Nature, Lond.* **182,** 1005-1006. **1373**

Metamidium is a mixture of two isomers of a para-aminophenyldiazoamino derivative of dimidium chloride. Tests on mice infected with lab. or field strains of *T. congolense* revealed that the drug was therapeutically more active than homidium chloride and that prophylactic inoculation of one-ninth of the lethal dose protected mice for up to 16 weeks. The therapeutic dose for mice, injected s/c, varied from 0·008 mg./kg. for the lab. strain of trypanosome to 3 mg./kg. for a field strain; the lethal dose was 260 mg./kg. A suramin salt of the drug was also prepared and was used therapeutically but not prophylactically in mice.—R.M.

BEVERIDGE, E., GOODWIN, L. G. & WALLS, L. P. (1958). **A new series of leishmanicides.** —*Nature, Lond.* **182,** 316-317. **1374**

The authors briefly described the chemical structure of a new series of pamaquin derivatives. It was stated that some members of the series possessed high activity against *Pl. gallinaceum* in chicks.—R.M.

BURNS, W. C. (1958). **Studies on toxin production and immunity in *Eimeria tenella* infections.** — *Dissertation, Wisconsin* pp. 99. [Abst. from abst. in *Diss. Abstr.* **18,** 2263. (1958).] **1375**

A toxin lethal for rabbits was present in homogenates and extracts of caecal mucosa from fowls infected with *E. tenella;* this toxin had no action on healthy fowls, rats, mice or hamsters. Sublethal inj. of crude caecal extract into rabbits occasionally elicited the formation of antibodies which neutralized the toxin. Similar antibodies could not be demonstrated in fowls injected with toxin or recovering from infection. Experiments with fowls having caecal pouches indicated that resistance or immunity to coccidiosis was established, at least in part, by a humoral mechanism and was not purely local. —R.M.

BAIDALIN, A. Y. (1958). **[Epidemiology, treatment and prophylaxis of renal coccidiosis in geese.]** — *Veterinariya, Moscow* **35,** No. 5 pp. 43-48. [In Russian.] **1376**

Renal *Eimeria truncata* infection in geese is a seasonal disease, with the highest incidence in June and July. Young geese, infected the previous year, excrete oocysts in spring and infect the the new generation of goslings. Mepacrine hydrochloride and aminoacriquine are suitable therapeutic drugs, 5 doses each of 0·05 or 0·1 g./kg. body wt. being given at intervals of 3 days. Prophylactic measures are the provision of well-drained pasture for goslings with access to running water, or administration of 4 doses each of 0·02 g. mepacrine hydrochloride per kg. 5 days apart when only damp pastures are available.—E. L. URCH.

LI, P. N. & RODIONOV, I. I. (1958). **[Electrophoretic study of protein fractions of blood from sheep with *Babesiella* infection.]** — *Veterinariya, Moscow* **35,** No. 5 pp. 39-43. [In Russian.] **1377**

Electrophoretic study of the blood serum of sheep with *Babesiella* infection revealed a fall in albumin content, and a sharp rise in the content of $\beta$ globulins and to a lesser extent of $\alpha_2$ and $\gamma$ globulins also. These changes were

greatest in severe cases. It is suggested that the albumin:β-globulin index would be useful in the prognosis of this disease.—E. L. URCH.

DUBOVŸÏ, S. Z. (1958). **[Epidemiology and prophylaxis of *Theileria annulata* infection of cattle in the Apsheron peninsula.]**—*Veterinariya, Moscow* **35,** No. 8 pp. 30-35. [In Russian.] **1378**

Theileriasis accounted for 98% of cases of disease caused by blood parasites. The proportion of carriers ranged from 0·02–0·3% of cattle. In carriers, the proportion of infected erythrocytes increased during non-infectious diseases, parturition and tick infestation. Theileria were identified in about one-third of ticks collected on various farms, except on a farm where cattle were treated against ticks and where only 2 of 23 ticks were infected. A diet rich in protein appeared to favour severe infection, as did pregnancy. Incidence was lower on farms having soil relatively rich in cobalt and copper.—R.M.

PIERESCA, G. (1958). Theileriasi bovina nell'Appenino parmense. **[Theileria infection in cattle in Parma.]**—*Nuova Vet.* **34,** 73-76. [Summaries in English, German and Spanish.] **1379**

*Theileria dispar* was demonstrated in the blood of cattle with tick fever. Ticks collected from the affected animals were identified as *Ixodes ricinus, Haemaphysalis punctata* and *Hyalomma savignyi*.—T.E.G.R.

BROCKLESBY, D. W. & HAWKING, F. (1958). **Growth of *Theileria annulata* and *T. parva* in tissue culture.** — *Trans. R. Soc. trop. Med. Hyg.* **52,** 414-420. [Authors' summary modified.] **1380**

*Th. annulata* was grown in tissue culture for over 59 days from implants of infected spleen, lymph node or liver. Multiplication occurred and the cultures were infective for cattle after 17 and 42 days. This confirms earlier work by Tchernomoretz (1945). *Th. parva* was maintained in tissue culture for up to 14 days. Some multiplication occurred during the first few days. The parasites occurred mostly in lymphoid cells; they were restricted to the cells of the initial implant and did not spread into the cells of the outgrowth. *Th. parva* appeared toxic for adjacent cells; and if the initial implant of spleen or lymph node contained many parasites, growth of all types of cell was inhibited.

AGAEV, A. A. (1958). **[Blood transfusion in the treatment of bovine theileriasis.]** — *Veterinariya, Moscow* **35,** No. 12 pp. 42-44. [In Russian.] **1381**

Transfusion of blood from convalescent cattle gave better results in *Th. annulata* infection than chemotherapy. Providing treatment commenced in the first days of illness, 2 or 3 transfusions each of 300–500 ml. blood resulted in clinical recovery in 91% of cases within 9–14 days. Blood preserved by the method of V.P. Filatov cured 39 of 40 cases.—R.M.

RANALI, E., GONZÁLES, G. S. & KOERBER, W. L. (1958). Premunição e terapêutica das plasmoses bovinas. **[Premunition and therapy in piroplasmosis and anaplasmosis of cattle.]**—*Bol. Industr. anim.* **16,** 197-205. [Summary in English.] **1382**

The authors confirmed the therapeutic action of "Ganaseg" ("Berenil") in piroplasmosis and of tetracycline hydrochloride in anaplasmosis. Premunition of imported cattle was done by inoculation of blood containing *Babesia bigemina, B. argentina* and *Anaplasma marginale* followed by chemotherapy with these two drugs: "Ganaseg" was administered with the first symptoms of piroplasmosis about 9 days after infection and tetracycline was administered with the appearance of anaplasmosis about 30 days after infection. Subsequent immunity was tested by exposure to infected ticks.—R.M.

*See also abstr.* **1527** (animal diseases in North Peru); **1640** (report, India); **1641** (report, Rhodesia & Nyasaland); **1642** (report, British Guiana); **1645** (report, Zanzibar); **1646** (report, Belgian Congo); **1647** (book, parasitic animals).

## DISEASES CAUSED BY VIRUSES AND RICKETTSIA

POTEL, K. (1958). Neue Ergebnisse auf dem Gebiet der experimentellen Pathologie der Maul- und Klauenseuche. **[Pathology in experimental foot and mouth disease.]**—*Mh. VetMed.* **13,** 401-405. **1383**

A discussion of recent work done at the Friedrich-Löffler Institute by the author and G. Korn, details of which have been published elsewhere.—R.M.

GEIGER, W. & BECK, W. (1958). Weitere Versuche mit trivalenter MKS-Vakzine. **[Further experiments with trivalent vaccines against foot and mouth disease.]**—*Dtsch. tierärztl. Wschr.* **65,** 263-268. [Summary in English.] **1384**

Two vaccines were tested on cattle by challenging them i/d or by swab infection with each type of the virus at differing intervals after

inoculation. One vaccine, inoculated 79 weeks after preparation, failed to protect cattle challenged after 9 months. The other consisted of a mixture of types $O_2$, $A_5$ and C and gave adequate protection against all three types of virus 15 days after inoculation. The first vaccine did not protect against types O and C after storage for 26 months. Double vaccination was no more effective than single.—R.M.

GEIGER, W. & OTTE, B. (1958). Die Vakzination des Schweines gegen Maul- und Klauenseuche. [**Vaccination of pigs against foot and mouth disease.**]—*Mh. Tierheilk.* **10,** 35-49. **1385**

Five vaccines were prepared from types $A_5$, O or C (Waldmann) from bovine or porcine aphthae, at different concentrations. Immunity was challenged with homologous virus by intradermal inoculation, contact, or nasal swabbing, between 10 and 30 days after vaccination. None provided satisfactory immunity but some lessened the severity of infection. Vaccine prepared from secondary aphthae possessed no immunizing properties, either in pigs or in cattle. A new source of antigen was required for the preparation of a pig vaccine.—R.M.

LYUBASHENKO, S. Y., TYUL'PANOVA, A. F. & GRISHIN, V. M. (1958). [**Aujeszky's disease in mink, arctic fox and silver fox.**]—*Veterinariya, Moscow* **35,** No. 8 pp. 37-41. [In Russian.] **1386**

The authors first observed the disease on a Leningrad fur farm in 1956, where 496 mink, 20 arctic foxes and 24 silver foxes died, representing 60–80% of the youngstock. There was a recurrence a year later on the same farm and the losses were 110, 36 and 35 of each species, respectively. Outbreaks were also observed on 2 other fur farms. The most typical symptom was pulmonary oedema. Scratching and loss of fur about the head and muzzle were observed in some affected foxes, but not at all in mink. The source of infection was infected meat or offal from abattoirs: it was recommended that meat products should be boiled before feeding.—R.M.

STRYSZAK, A. (1958). Zur Tollwutlage in Polen nach 6 Jahren Schutzimpfungen der Hunde. [**Effect of 6 years of preventive inoculation in dogs on incidence of rabies in Poland.**]—*Mh. VetMed.* **13,** 258-259. **1387**

By compulsory vaccination in Poland, incidence of rabies in dogs was reduced from 3,644 in 1949 to 75 in 1956, during which period between 700,000–1,000,000 dogs were vaccinated annually. Improvements in vaccine production reduced the incidence of post-vaccination paresis, probably caused by insufficiently inactivated fixed virus. Phenolized vaccine was used. —E.G.

BINDRICH, H. & SCHMIDT, U. (1958). Beitrag zur Virusausscheidung bei gesunden und immunen Hunden nach experimenteller Infektion mit dem Tollwutvirus. [**Excretion of virus by healthy and immune dogs after experimental infection with rabies virus.**] —*Arch. exp. VetMed.* **12,** 202-215. **1388**

50 dogs were infected with street, fixed, or the Flury strain of virus. Saliva and urine were collected for 22 days after infection and inoculated intracerebrally into mice. Virus was present in saliva from the 2nd to the 14th day after infection with street or fixed virus, and in the urine for up to 16 days. The excretion of virus was similar in dogs infected with street or fixed virus 4–8 months after inoculation of the Flury strain or 4–7 weeks after inoculation with the phenolized ether vaccine of Hempt. Dogs inoculated with the Flury strain alone did not excrete virus, except when the strain had been purified with chloroform.—R.M.

BINDRICH, H., POTEL, K. & KUWERT, E. (1958). Vergleichende Untersuchungen über den Gehalt an komplementbindendem Antigen und gewebliche Veränderungen im Gehirn tollwutkranker Hunde nach experimenteller Infektion. [**Comparison of the content of complement-fixing antigen with tissue changes in the brain of rabid dogs.**]—*Arch. exp. VetMed.* **12,** 134-151. **1389**

There was a relationship between the severity of lesions and the complement-fixing antigen content in various parts of the c.n.s. in 14 dogs, experimentally infected with either fixed or street rabies virus. The highest antigen content was in thalamus and stem, the site also of the most prominent lesions. In dogs infected with street virus, lesions were generally confined to the mesencephalon, diencephalon and rhombencephalon, whereas fixed virus produced more generalized and nervous lesions, a frequent feature being meningitis. It was recommended that antigen for routine diagnosis by the c.f. test should be prepared from thalamus and brain stem.—E.G.

BUCHNEV, K. N. & NIKOLAEVA, V. V. (1958). [**Specific serotherapy in animals with clinical signs of rabies.**]—*Veterinariya, Moscow* **35,** No. 7 pp. 31-36. [In Russian. Summary in English.] **1390**

Working at the Dal'nevostochnyi veterin-

ary institute (Blagoveshchensk), the authors prepared a highly active rabies immune serum [details not given]. They infected 16 dogs and a cat intracerebrally with fixed virus. Immune serum was administered in a dose of 10–15 ml./kg. body wt. 1–3 days after infection and the dose was repeated intraperitoneally when symptoms of rabies developed. 8 of the dogs and the cat survived.—R.M.

STARKE, G. & SEIDL, S. (1957). Experimentelle Untersuchungen über die Wirkungen des Ultraschalls auf das Virus-fixe. [**Effect of ultrasonic waves on rabies fixed virus.**]—*Z. ges. Hyg.* **3,** 333-336. **1391**

Under certain conditions and in suitable suspensions rabies virus was inactivated by exposure to ultrasonic waves. It appeared that inactivation was less influenced by the intensity than by the duration of exposure. Ultrasonic treatment of phenol had no effect on its viricidal properties but by combination of ultrasonic waves and phenol viricidal effect appeared to be potentiated.—E.G.

LEE, D. J., FENNER, F. & LAWRENCE, J. J. (1958). **Mosquitoes and fowl pox in the Sydney area.**—*Aust. vet. J.* **34,** 230-237. **1392**

Fowl pox in commercial poultry flocks is of minor importance in N.S.W. owing to the widespread use of vaccination. This study deals with the disease in backyard non-vaccinated flocks. Fowl pox occurs in the summer and early autumn, appearing in different districts according to a fairly constant seasonal pattern.

Mosquitoes in the vicinity of fowl houses were examined for fowl pox virus by seeding on to the chorioallantoic membrane of chick embryos. The virus was recovered from 3 of 32 pools of *Culex fatigans* in 1954 and from 7 of 11 pools of *C. fatigans* and one of 2 pools of *Aedes notoscriptus* in 1955. Nineteen pools of 6 other species of mosquitoes in 1954 failed to yield fowl pox vaccine. Precipitin tests showed that in addition to *C. fatigans* and *A. notoscriptus* 5 other species of mosquitoes had engorged on fowls. Whilst the obvious fowl to fowl vector is *C. fatigans,* other species could also be involved.—L. HART.

WITTMANN, G. (1958). Der Nachweis präzipitierender Antikörper bei der Hühnerpockeninfektion mit Hilfe des Agar-Diffusionsverfahrens. [**Demonstration of precipitating antibodies in fowl pox by the agar diffusion technique.**]—*Zbl. VetMed.* **5,** 769-775. [Summaries in English, French and Spanish. English summary modified.] **1393**

Antibodies were demonstrated by the precipitin test in 16 of 97 hens with fowl pox. They appeared between 11 and 36 days after infection and persisted from a few days for up to 2 weeks. The ability to form precipitating antibodies appeared to increase with age but this was observed only in a few old birds. Highly virulent virus stimulated antibody production more than weak strains and the amount of virus inoculated was important. The causes of the defective antibody production are discussed.

BYSTRICKÝ, V., ŽUFFA, A. & ŠKODA, R. (1958). Elektronenmikroskopische Untersuchung der Geflügel- und Taubenpockenviren. [**Study by electron microscope of fowl pox and pigeon pox viruses.**]—*Arch. exp. VetMed.* **12,** 323-327. **1394**

An account in German of work previously published in Slovak [*V.B.* **28,** 3948].—R.M.

ANDREWES, C. H. (1958). **Symposium on the aetiology, spread and control of epidemic influenza. (a) The epidemiology of epidemic influenza.**—*Roy. Soc. Hlth J.* **78,** 533-545. Discussion: pp. 561-562. **1395**

Among other topics, the author discussed the possibility that Asian influenza originated from an animal host in China. Evidence for this was the existence of a Type A influenza virus in horses and the ability of Type A strains to infect rodents, hedgehogs and ferrets. Fowl plague virus and two duck viruses (one from the U.K. and one from Czechoslovakia) shared common complement-fixing antigens with Type A virus.—R.M.

KLEIN, M. (1958). **The significance of human antiviral neutralizing substances in animal sera.** — *Ann. N.Y. Acad. Sci.* **70,** 362-368. **1396**

About 80 infections are shared by animals and man. The antigen-antibody reaction is one of the most sensitive tools for determining relationships between viruses. Pure antigen–antibody reactions are, however, never possible because of complexities in the reagents. There are large numbers of non-specific inhibitors of the reactions in animal sera. The literature on unexplained inhibitors in animal sera is a collection of miscellaneous scattered information with no central theme discernible, other than the fact that there is a variety of inhibitors.

In a study of the question K. made tests with Types I, II and III polioviruses and with Types 4 and 5 Coxsackie viruses on 150 cows on four farms in Pennsylvania. He found that:– (1) The neutralizing substance in serum is heat

stable, resisting 60°C. for 30 min. (2) The inhibitor is in the globulin fraction obtained by precipitation wth ammon. sulphate, one-third saturation. (3) The inhibitor is type-specific: some sera inhibit Type I, others Type II or Type III poliovirus: still others, combinations of all three, or none at all. (4) There is evidence of passive transfer, for new-born calves have neutralizing substances which disappear in a month or so and gradually reappear as the animal matures. (5) Neutralizing titres vary from 0 to 1:250, a pattern consistent with antibody interpretation.

He posed the question whether the above data permit the conclusion that cows have antibodies to Types I, II and III polioviruses, or whether other substances exist in serum that mimic this antibody pattern. He discussed substances other than antibody that neutralize viruses. There are many and most of them are poorly defined. The following were his deductions:— (1) Sera should retain their inhibitory activity after heating at 60°C. for 30 min. and the inhibitory activity should be in the globulin fraction. (2) Inhibitors should show serological specificity and titres should vary among animals, with a pattern of passive transfer and an increase in incidence with the age of the animal. (3) If an inhibitor is a true antibody, the titre should not be affected when sera are treated with receptor-destroying enzyme, sodium periodate, trypsin or fat solvents. Centrifugation at high speed should not remove the inhibitor. (4) If sera are positive by one serological method they should be tested by other serological procedures: a further positive result supports evidence as to antibody. (5) A booster response of the inhibitor when the animal is injected with the test organism is further evidence of a true antibody. (6) If available, clinical and epidemiological data with a rise in inhibitor titre are almost conclusive evidence of a true antibody.

Some of these procedures are not always possible and true antibody may be present without the possibility of demonstrating all of the above reactions. A non-specific inhibitor may possess some of the above properties. Finally, the test virus must be above suspicion.—W.A.P.

Nagler, F. P. & Klotz, M. (1958). **A fatal B virus infection in a person subject to recurrent herpes labialis.** — *Canad. med. Ass. J.* **79,** 743-745. **1397**

A report of a fatal case of B virus infection in a laboratory worker mainly occupied with the inoculation and P.M. examination of Rhesus monkeys. The clinical features and pathology are described. A virus, which was not neutralized by herpes or by poliomyelitis sera but which was neutralized by B virus serum, was isolated in tissue culture on the chick embryo and by inoculation of rabbits and mice.

Dubreuil, R. & Pavilanis, V. (1958). Emploi d'un milieu synthétique simplifié pour la culture *in vitro* de cellules animales et du virus de la poliomyélite. **[A simple synthetic medium for tissue culture.]** — *Canad. J. Microbiol.* **4,** 543-550. [In French.] **1398**

A simplified synthetic medium for monkey or mouse kidney tissue cultures is described. In studies with experimental lots of poliomyelitis vaccine the virus concentrations of the three virus strains were as high as those obtained with the use of more complex nutritive media and no important differences could be determined between vaccines prepared with the two types of media.—R. V. L. Walker.

Wang Chieng-yuan, Jen Kung-hung & Wang Chih-lun. (1957). **[Observations on the several types of encephalitis viruses neutralized by the sera of horses and cattle in Peking.]**—*Acta microbiol. sinica* **5,** 294-296. [In Chinese. English summary modified.] **1399**

Some sera of horses and cattle collected in 1951 to 1953 neutralized Japanese B and St. Louis encephalitis viruses showing that these two viruses are related serologically. Some of the cattle sera neutralized Western equine encephalomyelitis virus, indicating that these animals might have been infected with a virus which has an antigen common to Western equine encephalomyelitis virus. It was concluded that attention must be paid to other neurotropic viruses when studying cases suspected to be Japanese B encephalitis.

Klaus, H. & Matthias, D. (1958). Das Verhalten des Serumbilirubinspiegels bei der Bornaschen Krankheit. **[Bilirubin content of serum in Borna disease.]** — *Arch. exp. VetMed.* **12,** 152-172. **1400**

In the course of Borna disease horses, but not sheep, calves and rabbits may develop jaundice. Since icterus appears to be common in healthy, fasting horses, the authors concluded that hyperbilirubinaemia in Borna disease is not the direct result of the infection but is caused indirectly by the low food intake in infected horses. Icterus in fasting horses is associated with the reduced excretion of bile into the intestine, the absence of a gall bladder and the attempt to rid the body of the surplus bile *via* the blood stream.—E.G.

HEINIG, A. (1958). Zur Ausbreitung des Bornavirus im Zentralnervensystem. **[Spread of Borna disease virus in the central nervous system.]** — *Arch. exp. VetMed.* **12,** 315-322. **1401**

Rabbits were infected by suboccipital, intracerebral (i/c) or intranasal inoculation of the virus and the virus content of nasal mucosa, cerebrospinal fluid and brain was tested by rabbit inoculation for 20 days after infection. Tests were also made for complement-fixing antigen in brain. Virus was not recovered from brain and c.s.f. until 60 hours after i/c or suboccipital infection, and 7–8 days after intranasal infection. In spite of these differing latent periods, the incubation period of the disease was always the same. C.f. antigen was not detected in brain until 12 days after i/c or suboccipital infection and 15 days after intranasal infection. In sheep the virus was also present in brain long before the appearance of clinical symptoms.—R.M.

SHAHI, H. B. (1958). **United Nations. Report to the Government of Nepal on the control of rinderpest and the establishment of a veterinary service.** pp. 12. Rome: Food and Agriculture Organization of the United Nations. [FAO Report No. 882.] **1402**

The report is the result of a visit lasting nine weeks. Recommendations for control of rinderpest and development of veterinary services are made. At present there is only one qualified veterinarian in Nepal.

ADEMOLLO, A. (1958). A proposito di importazione di carne dai paesi infetti di peste bovina. **[The danger of spread of rinderpest by meat imported from infected countries.]**—*Vet. ital.* **9,** 130-138. [Summaries in English, French and German.] **1403**

A paper by R. Receveur on the dangers of spread of rinderpest by fresh or frozen meat imported from infected countries [*V.B.* **28,** 3587] is discussed. While agreeing in principle, Ademollo deems it prudent to recall an episode of rinderpest in Italy in which imported meat was incriminated as the source of infection. In 1918 rinderpest was suspected in a herd of about 40 cattle in the Vicenza Province. Investigations were made by Professor L. Grassi and Professor P. Stazzi and rinderpest was diagnosed on clinical and pathological findings. Diagnosis was confirmed by two British veterinary officers who had served in India and who at the time were in the Province of Vicenza with British forces operating in that area. A considerable quantity of frozen meat (imported for the British army from the Philippines, where rinderpest existed) was found on premises adjoining those where the first outbreak occurred. Meat wrappers had been deposited in the cattle shed and yard where the first cases occurred. It is considered that infection was somehow conveyed by the water in which some of the wrappers had been washed. These findings led to the conclusion that rinderpest was introduced by frozen meat. Immediate slaughter of all cattle within a radius of 500 metres from the outbreaks and other strict measures removed all danger of spread of infection. In view of this the restrictions in force in Italy are considered fully justified.

—T.E.G.R.

PROVOST, A. (1958). Essais de transmission de la peste bovine par aerosols virulents. **[Attempts to transmit rinderpest by means of infective aerosols.]**—*Bull. epiz. Dis. Afr.* **6,** 79-85. [Summary in English pp. 43-44.] **1404**

Rinderpest developed in 20 of 25 cattle exposed to an aerosol of virulent virus, administered through a face mask, compared with 19 of 25 inoculated s/c. On the other hand, it was difficult to infect cattle and goats with caprinized or lapinized virus by the aerosol method. It was suggested that less attenuated strains would be more suitable for immunizing cattle by this route. Adaptation to foreign hosts seemed to decrease the ability of the virus to penetrate epithelium.—R.M.

SHANMUGHAM, S. (1958). **Further studies on freeze dried rinderpest goat tissue vaccine.**—*Indian vet. J.* **35,** 452-467. **1405**

S. recorded certain observations and data pertaining to freeze-drying of the vaccine, which was found to contain higher titres (1:16,000) of the virus when the processing was done in an air-conditioned room at 65° to 70°F. as compared to titres of 1:8,000 or below in the case of ordinary room temperatures ranging from 76° to 98°F.—R. N. MOHAN.

GORET, P., MORNET, P., GILBERT, Y. & PILET, C. (1958). Une curieuse parenté immunologique: Constatation d'une immunité croisée entre la maladie de Carré et la peste bovine (recherches préliminaires). **[Cross immunity between rinderpest and dog distemper.]**—*Bull. Off. int. Epiz.* **49,** 501-507. **1406**

A discussion of work previously abstracted [*V.B.* **28,** 1454].—R.M.

FUJIMOTO, Y., SATOH, H., USHIJIMA, J. & YAMASHITA, S. (1958). **An observation on bovine malignant catarrh in Japan.**—*Jap. J.*

*vet. Res.* **6**, 93-106. [In English. Authors' summary modified.] **1407**

The histology of the lesions was studied in two cases. The main lesions, in the mucosa of the upper respiratory tract and digestive canal, were fibrinous necrotic inflammation with ulceration and vesicle formation. Ballooning degeneration was a feature of the stratified epithelial lesions and occasionally Russell bodies were observed in the cytoplasm of epithelial cells. Marked non-suppurative meningo-encephalitis was noted in the c.n.s. Acidophilic cytoplasmic inclusions were found in the nerve cells of the vagoglossopharyngeal nucleus in one case. No inclusions were found in any other regions.

CABASSO, V. J. & BROWN, R. G. (1958). **Infectious bovine rhinotracheitis (IBR) III. Lack of contact transmission following intramuscular inoculation.** — *Vet. Med.* **53**, 503-506. **1408**

After intramuscular injection of as many as 1,000,000 or as few as 100 tissue cytopathogenic doses ($TCD_{50}$) of a living strain of the infectious bovine rhinotracheitis virus, symptoms of the disease failed to develop in susceptible calves although intranasally exposed control animals developed the disease. Serum neutralizing antibodies developed and all the animals were immune to intranasal challenge. Intimate contact controls did not become infected and remained fully susceptible. This strain of virus seems to meet the criteria for safety and potency of an acceptable live virus vaccine.—A. ACKROYD.

D'AMORE, P. (1958). Il trattamento antimoniale della papillomatosi dei bovini e degli equini. **[Treatment with antimony of papillomatosis in cattle and horses.]** — *Vet. ital.* **9**, 577-579. **1409**

Papillomatosis in horses and in a cow was successfully treated with 10 stibophen injections (25 ml. each) [route not stated] at 3-day intervals.—T.E.G.R.

GREIG, A. S. (1958). **Continuous cultivation and susceptibility to bovine viruses of cell lines derived from bovine embryonic tissues.** —*Canad. J. Microbiol.* **4**, 487-492. **1410**

In an effort to provide practical, reliable and stable cells for the propagation of bovine viruses, two cell lines from bovine embryo kidney and bovine embryo skin were established in tissue culture. No changes in growth habits or morphology were encountered through 45 passages of the kidney cells but a period of growth recession was observed in the skin cells between the third and seventh passage with the final appearance of a new fast-growing cell type. Both kidney and skin cells propagated well in media containing a high percentage of bovine serum. So far the viruses of bovine rhinotracheitis and coital exanthema have been successfully cultivated, causing eventual death of the tissue cells through degenerative changes. It is not yet established whether these cell lines will remain stable over an indefinite period, but long term storage by freezing is being carried out to determine if preservation by this method is possible. —R. V. L. WALKER.

KOKERNOT, R. H., DE MEILLON, B., PATERSON, H. E., HEYMANN, C. S. & SMITHBURN, K. C. (1957). **Middelburg virus, a hitherto unknown agent isolated from *Aedes* mosquitoes during an epizootic in sheep in the Eastern Cape Province.** — *S. Afr. J. med. Sci.* **22**, 145-153. **1411**

A filtrable virus was isolated from *Aedes caballus* collected in the Middelburg district of the Cape Province where high mortality occurred among sheep during the late summer of 1957. It differs immunologically from other known viruses and the name Middelburg virus is proposed for it. Lab.-reared *A. caballus* fed brain–blood suspension from infected mice transmitted the virus to lambs, infant mice and day-old chicks after incubation periods of 4, 10 and 19 days. It was demonstrated that this mosquito can transmit the virus from lamb to lamb. The agent introduced into lambs by inoculation or by infected *A. caballus* set up a viraemia with a rapid temp. reaction and high titre of neutralizing antibody. The lambs became fully resistant to challenge by homologous virus but were susceptible to Rift Valley fever and Wesselsbron viruses. Neutralizing antibodies were demonstrated in serum samples of sheep and human beings frequenting the habitat of the infected mosquitoes.—T.E.G.R.

POTEL, K. (1958). Experimentelle Untersuchungen zur Blut-Hirnschranke bei Schweinepest. **[The blood-brain barrier in swine fever.]** — *Arch. exp. VetMed.* **12**, 282-314. **1412**

The brains of 60 pigs killed 3–8 days after experimental infection were examined histologically and for virus content. When encephalitis was present the virus content was higher than that of histologically normal brain, but there was no relationship between virus content and severity of the lesions. The blood-brain barrier was studied by injection of trypanblue or "Geigy blue 536" into the carotid arteries of

anaesthetized pigs. Increased permeability of brain capillaries was demonstrated in encephalitis. Technical difficulties of the dye technique were discussed.—R.M.

ARKHIPOV, N. M. & PAVLOVSKII, V. V. (1958). **[Dried lapinized swine fever virus vaccine.]** —*Veterinariya, Moscow* **35,** No. 5 pp. 84-89. [In Russian.] **1413**

Pigs vaccinated with dried lapinized swine fever virus developed active immunity against the disease. Unvaccinated pigs in contact with them did not contract infection. Immune serum given simultaneously reduced severe reactions to the vaccine, and was used for pigs under 3 months old and pigs in poor condition. In outbreaks of swine fever 92% of the pigs could be saved if disinfection and vaccination were carried out during the first 3–4 days.—E. L .URCH.

OSBORNE, J. C. (1958). **The successful control of hog cholera virus leukopenia with *Hemophilus pertussis* bacterin.**—*Amer. J. vet. Res.* **19,** 902-906. [Author's summary modified.] **1414**

Killed *H. pertussis* vaccine produced a marked leucocytosis when injected subcutaneously in normal weanling pigs.

The pattern of leucopenia that usually follows vaccination with modified swine fever virus can be altered considerably by appropriately timed injections of *H. pertussis* vaccine.

*H. pertussis* vaccine injected at two-day intervals after virus vaccination can be used to maintain the leucocytes within the normal range.

The leucopenia that usually follows vaccination with modified swine fever virus appears to be necessary for the development of a strong immunity.

SEGRE, D. (1958). **Further studies on the resin agglutination test for vesicular stomatitis and hog cholera.** — *Proc. 61st Ann. Meet. U.S. live Stk sanit. Ass., St. Louis,* 1957 pp. 287-293. **1415**

Comparative titrations with the resin agglutination inhibition test and serum neutralizing tests were conducted on 43 sera containing vesicular stomatitis antibodies. There was good agreement between the two procedures. It was suggested that the resin test be used as a screening method in surveys for vesicular stomatitis. The resin test was applied to material from 12 suspected outbreaks of swine fever, and was positive in 4 of 5 confirmed outbreaks (false-positive results being obtained in 3 of the remaining 7 cases).—R.M.

I. PATOČKA, F., KUBELKA, V. & KORYCH, B. (1957). Kultivace virusu encephalomyelitis enzootica suum v homologní tkáni. I. **[Cultivation of Teschen disease virus in tissue culture. I.]**—*Čsl. Epidem. Mikrobiol. Imunol.* **6,** 162-165. [In Czech. Summaries in English and Russian.] **1416**

II. KORYCH, B., PATOČKA, F. & KUBELKA, V. (1957). Kultivace virusu encephalomyelitis enzootica suum v tkáňových kulturách homologní tkáně. II. **[Cultivation of Teschen disease virus in tissue culture. II.]** — *Ibid.* 166-168. [In Czech. Summaries in English and Russian.] **1417**

III. PATOČKA, F., KUBELKA, V. & KORYCH, B. (1958). Pokus o modelovou imunisaci vepřů proti těšinské chorobě formolisovaným virem z tkáňových kultur. **[Immunization of pigs against Teschen disease with formolized virus grown in tissue culture.]**—*Ibid.* **7,** 73-77. [In Czech. Summaries in English and Russian.] **1418**

I. One ml. of third passage Teschen disease virus grown in homologous embryonic or adult tissue culture killed piglets after 7 days. Dilutions of $10^{-1}$ killed after 10 days.

II. The cytopathogenic effect was studied in tissue culture of porcine embryonic renal cortex, infected with $10^{-1}$ dilution of cord material from infected pigs.

III. Tissue culture virus was inactivated with formalin at 37°C. and safety tests carried out. Eight pigs were vaccinated i/m with two doses of 2 ml. each at an interval of 3 weeks and challenged intranasally with 440 $LD_{50}$ of virulent virus six weeks after the second dose of vaccine. Four of the vaccinated pigs and all controls died after 10–16 days' incubation. Further work to evolve a virus of high immunogenicity and low virulence was contemplated.—E.G.

—. (1958). **The establishment of disease free pig herds with particular reference to infectious pneumonia.** — *Aust. vet. J.* **34,** 305-326. **1419**

I. PULLAR, E. M. **(a) General principles and method.** (pp. 305-315.) This paper formed the basis for an A.V.A. conference session on the eradication of infectious pneumonia from herds of pigs in Australia. The author lays down the general principles of disease control used, and describes their application. In addition there is a comprehensive list and a description of the pathological conditions found in the pigs used in field trials. Details are given of the field trials carried out on various agricultural research stations.

II. Snowdon, W. A. **(b) Field trial at Rutherglen Research Station.** (pp. 316-319.) The author describes a successful project for the eradication of infectious pneumonia from a piggery run by an Agricultural College. Breakdowns in the programme were analysed and rectified. Details of methods, which eliminated the disease economically, are clearly described.

III. Miles, E. H. **(c) Field trial at Dookie.** (pp. 319–323.) This paper described the successful elimination of infectious pneumonia from a stud herd. Some attempt was made to estimate the reduction in growth rate caused by the disease. Weaning weight was reduced by 23%. The methods used were to detect affected pigs clinically by their cough, and slaughter them, or to test a litter by the slaughter and examination of its unthrifty members. Most of the pigs in each litter when grown were examined at slaughter at an abattoir and pigs for breeding were chosen from litters showing no lesions.

IV. Ewer, T. K. **Opening of discussion.** (pp. 323–326) E. opened the discussion on the three previous papers. He emphasized the necessity of adequate isolation and the examination of adequate numbers of sets of lungs. He described attempts to rear pigs artificially from birth and gave the meal mixtures used. He regarded the method as unsatisfactory because of scouring of unknown aetiology even though pneumonia was absent in the survivors. Attempts to rear pigs which had been suckled by the sow for one week were more successful and these pigs did not develop pneumonia.—L. Lloyd.

Demeio, J. L. (1958). **Study of canine distemper virus and hemagglutinating virus of Japan as causes of disease in man.** — *Dissertation, Wisconsin* pp. 87. [Abst. from abst. in *Diss. Abstr.* **18,** 1941. (1958).] **1420**

Results of tests on serum from human beings with upper respiratory diseases for distemper antibodies were inconclusive. About 12% of patients with atypical pneumonia, infectious mononucleosis or influenza showed significant increases in haemagglutinating virus antibody. The virus may share a common antigen with mumps virus, since sera from 22 of 24 persons with mumps gave positive haemagglutination-inhibition, c.f. and neutralization tests for haemagglutinating virus.—R.M.

Bolin, V. S., Jarnevic, N. & Austin, J. A. (1958). **Infectious canine hepatitis virus studies with special reference to passage of raccoon tissue cultures.** — *Proc. Soc. exp. Biol., N.Y.* **98,** 414-418. **1421**

This paper deals with growth of the virus in kidney and epithelial tissues from wild raccoons (*Procyon lotor*), isolation of the virus from kidneys of 2 apparently healthy dogs (one of which had been exposed to infection 3 months earlier), and a serological survey which revealed antibodies in serum from 17 of 216 puppies aged 3–7 months, in rural areas of Kansas.—R.M.

Schwartzman, R. M. & Besch, E. D. (1958). **Feline infectious anemia.** — *Vet. Med.* **53,** 494-500. **1422**

Two case histories of feline infectious anaemia are reported. In one case, tetracycline intramuscularly had a marked therapeutic effect but the final outcome is as yet not known. All signs of the disease are attributable to anaemia and diagnosis depends on the identification of eperythrozoon-like bodies attached to the red blood corpuscles. The disease was reproduced experimentally in 5 of 6 adult cats by intraperitoneal injection of infected blood. In these, blood values tended gradually to return to normal without therapy, but blood parasites could still be occasionally observed at least one year after infection.—A. Ackroyd.

Knox, B. (1958). Virus enteritis hos mink konstateret for første gang i Danmark. Foreløbig meddelelse. **[First report of virus enteritis in mink in Denmark.]**—*Medlemsbl. danske Dyrlaegeforen.* **41,** 727-730. [In Danish.] **1423**

Three severe outbreaks have recently occurred, almost exclusively in young mink. The symptoms and P.M. findings were identical with those described in Canada and the U.S.A. The disease was transmitted to healthy mink by feed-suspensions of faeces or intestinal material from affected mink, by inoculation or dosing with bacteria-free filtrates, and by contact. Further studies to identify the virus and to find the most effective vaccine are projected. The author discussed the literature on the disease in Canada and the U.S.A.—F.E.W.

Boulger, L. R. & Porterfield, J. S. (1958). **Isolation of a virus from Nigerian fruit bats.** — *Trans. R. Soc. trop. Med. Hyg.* **52,** 421-424. [Authors' summary modified.] **1424**

A virus pathogenic for mice was isolated from the pooled brains of 6 fruit bats (*Eidolon helvum*). It is not rabies virus. Serological tests indicated that it is probably an undescribed agent for which the name of Lagos Bat Virus is proposed.

Tokumaru, T. & Schäfer, W. (1958). Interferenz beim Virus der klassischen Geflügelpest. I. Mitt.: Die Wirkung von uv-inakti-

viertem Virus, von Virusspaltproduktion und RDE auf die Vermehrung von dem Geflügelpest-Virus in der Gewebekultur. **[Interference in the virus of fowl plague. I.]** —*Z. Naturf.* **13b**, 704-713. **1425**

Homologous interference was produced in cultures of chick-embryo cells by fowl plague virus which had been inactivated by ultra-violet irradiation. The capacity of irradiated virus to interfere increased with the duration of irradiation. Other agents did not inhibit growth of the virus: "RDE" (receptor-destroying enzyme), virus haemagglutinin, virus soluble antigen.—R.M.

Lukačević, J., Gall-Palla, V. & Gall, Z. (1958). Odnos seroloških i elektroforetskih nalaza krvnih seruma kod kokošje kuge. **[Haemagglutination-inhibition test and serum electrophoresis in fowls with Newcastle disease.]** — *Veterinaria, Sarajevo* **7**, 289-296. [In Croat. Summary in English.] **1426**

Details were given of examination of the haemagglutination-inhibition reaction and by electrophoresis of serum samples from 11 fowls vaccinated with adsorbed Newcastle disease vaccine, 37 fowls vaccinated with Mukteswar saline vaccine, 13 experimentally infected fowls, and 30 non-vaccinated, healthy controls. In samples from vaccinated fowls in which specific antibodies were demonstrable by the HI test, there was a significant increase in $\gamma$-globulins, and a decrease in $\alpha$-2-globulins. The $\gamma$-globulin content in samples from fowls immunized with Mukteswar vaccine was 34%, in those immunized with adsorbed vaccine 23%, and in experimentally infected fowls 37% higher than in control sera. There was no substantial difference between serum from vaccinated fowls in which specific antibodies were not demonstrable, and that of non-vaccinated controls.—E.G.

Maglione, E. & Dotta, U. (1957). Contributo allo studio della eredo-immunità nella pseudopeste aviare. **[Hereditary immunity to Newcastle disease.]**—*Ann. Fac. Med. vet. Torino* **7**, 29-46. [Summaries in English and French.] **1427**

Haemagglutination-inhibiting and neutralizing antibodies were demonstrable in chicks hatched from eggs of hyperimmunized hens and persisted in decreasing titres until the 25th day of life. They were present in chicks from vaccinated hens in decreasing titres until the tenth day. Chicks in the first group were resistant to experimental infection at 15–30 days, less so at 48 and not at all at 60. In the second group resistance lasted only a fortnight.—T.E.G.R.

Petek, M. & Corazzola, S. (1958). Azione inattivante dell'etere etilico e del siero fresco sul virus della bronchite infettiva. **[Inactivation of the virus of avian infectious bronchitis by ether and by fresh serum.]**—*Vet. ital.* **9**, 515-520. [Summaries in English, French and German.] **1428**

The infectivity of two strains of infectious bronchitis virus was reduced by ether and by fresh g.pig serum.—T.E.G.R.

Caparrini, W. (1958). Un focolaio di cheratocongiuntivite da rickettsia nelle pecore della provincia di Viterbo. **[Rickettsial keratoconjunctivitis in sheep in the Viterbo Province.]**—*Zooprofilassi* **13**, 399-400. **1429**

An account of rickettsial keratoconjunctivitis in a flock of sheep. There was corneal opacity which gradually increased, assumed a bluish and greyish pink colour and extended from the centre towards the periphery. Granulation on the conjunctiva was rare and there was no ulceration. Rickettsia was demonstrated microscopically and biologically in the conjunctival exudate. Half of the sheep were treated with local applications of oxytetracycline and were cured in one week; those untreated recovered in 15–20 days.—T.E.G.R.

*See also absts.* **1641** (report, Rhodesia & Nyasaland); **1642** (report, British Honduras); **1644** (report, Grenada); **1645** (report, Zanzibar).

## IMMUNITY

Ingraham, J. S. (1958). **The preparation and use of formalinized erythrocytes with attached antigens or haptens to titrate antibodies.** — *Proc. Soc. exp. Biol., N.Y.* **99**, 452-456. [Author's summary.] **1430**

Improved methods for preparation of formalinized red blood cells and a simple method using formalin to bind proteins to these cells yielding a stable, highly sensitive antigen have been described. Cells prepared by these methods give agglutination patterns almost as distinct as those obtained using fresh cells; they are not agglutinated by traces of formaldehyde and are stable on storage at 3–5°C. When cells were coupled with sulphanil-azo-groups a convenient and sensitive antigen for the estimation of antibody against this hapten was obtained.

WEINBACH, R. (1958). Die Verwendbarkeit formolbehandelter Erythrocyten als Antigenträger in der indirekten Haemagglutination. I. Mitteilung. **[Use of formaldehyde-treated erythrocytes as antigen carriers in indirect haemagglutination.]**—*Schweiz. Z. allg. Path.* **21,** 1043-1052. [Summaries in English and French. English summary modified.] **1431**

Sheep and human erythrocytes treated with formaldehyde could be stored for a long time and became more suitable for the indirect haemagglutination test than fresh erythrocytes.

RIGGS, J. L., SEIWALD, R. J., BURCKHALTER, J. H., DOWNS, C. M. & METCALF, T. G. (1958). **Isothiocyanate compounds as fluorescent labeling agents for immune serum.** — *Amer. J. Path.* **34,** 1081-1097. [Authors' summary modified.] **1432**

Two fluorescent isothiocyanate dyes were synthesized for use in labelling antibodies. The advantages of these isothiocyanates over the corresponding isocyanates depend upon their stability in a solid form which allows their storage and use directly when needed. The substitution of a less toxic substance, thiophosgene, for the highly toxic phosgene gas offers added advantage. The dyes were successfully conjugated with antisera against different antigens. Specific staining of the following antigens was carried out, using the direct and indirect techniques: *B. anthracis, Br. tularensis, R. typhi,* and adenovirus RI–67.

BANOVITZ, J. B. (1958). **The study of the reactions of chicken antiserum by physical chemical methods.**—*Dissertation, Wisconsin* pp. 89. [Abst. from abst. in *Diss. Abstr.* **18,** 2262-2263. (1958).] **1433**

It was concluded that chicken antibody was composed of a mixture of univalent and divalent antibodies. Furthermore, it was shown that the precipitin reaction of chicken antiserum was specific in the sense that antibody from the gamma globulin was the main component involved. Only a very small amount of alpha globulin could have been included in the antigen–antibody precipitate. Although less antibody was precipitated from the gamma globulin fraction in comparison with the quantities obtained from the whole antiserum, the amounts involved do not support the view that a large amount of the antigen–antibody precipitate consists of alpha globulin.

ASHTON, G. C. (1958). **Serum protein variations in horses.** — *Nature, Lond.* **182,** 1029-1030. **1434**

Ashton has previously described starch-gel electrophoresis of cattle serum [*V.B.* **28,** 2896]. Applying the technique to 79 horse sera, he found three different beta-globulins, at least 3 different pre-albumin groups, and 2 alpha-globulin systems. It was not known whether these variations were inherited.—R.M.

NELSON, R. A., JR. (1958). **An alternative mechanism for the properdin system.**—*J. exp. Med.* **108,** 515-535. **1435**

Experiments with normal human sera showed the presence of antibody which was capable of sensitizing zymosan to react in immune adherence, aggregation and complement-fixation tests. The presence of this antibody in serum used as a source of complement suggested that the properties ascribed to properdin could be explained on the basis of the classical concept of antibody reacting in conjunction with certain components of complement. The results suggested that the properdin complex with zymosan represented a mixture of the following, zymosan plus antibody, zymosan plus antibody plus complement components 1 & 4, and zymosan plus antibody plus complement components 1, 4 & 2. The preferential reactivity of zymosan with complement component 3 was not supported since approximately the same number of units of components 1 & 4 and component 3 were inactivated by zymosan as by *Streptococcus pneumoniae* and a washed specific precipitate of bovine albumin–anti-albumin. Although $C'_3$ is not classically fixed in complement-fixation reactions the reactivity in these experiments was explained on the basis of the use of undiluted serum as a source of $C'_3$ and 37°C. as the temperature for fixation.

It is suggested that the common factor of the various antigens reacting in the properdin system was the polysaccharide and that the wide spectrum of reactivity reflected an equally wide distribution of closely related polysaccharides.
—A. E. PIERCE.

EISEN, H. N. & TABACHNICK, M. (1958). **Elicitation of allergic contact dermatitis in the guinea pig. The distribution of bound dinitrobenzene groups within the skin and quantitative determination of the extent of combination of 2,4-dinitrochlorobenzene with epidermal protein *in vivo*.**—*J. exp. Med.* **108,** 773-796. [Authors' summary modified.] **1436**

When a dilute, non-irritant solution of 2, 4-dinitrochlorobenzene (DNCB) is applied to the skin of the intact g.pig, about 20% of the material, or some derivative of it, is soon excreted in urine. In normal and in sensitized g.pigs, DNCB at the site of application becomes rapidly

bound to skin protein through primary chemical bonds. 24 hours after application roughly half of the material at the local skin site is still extractable with organic solvents. Of the non-extractable dinitrophenyl groups, about 99% are in epidermis, and about 85% are substituted in $\epsilon$–$NH_2$ groups of lysine residues. Only traces of bound dinitrophenyl groups were observed in the corium. It is uncertain whether these are formed *in situ*, or are experimental contaminants, or are migratory epidermally formed conjugates. Even when DNCB is injected intradermally it combines predominantly with overlying epidermis and with epidermal components of hair follicles, but only slightly with corium.

The 2, 4-dinitrophenyl conjugates which are localized in the deeper, viable half of the epidermis, close to the epidermal–dermal junction, are inferred to be the agents responsible for specifically evoking the allergic response in sensitized animals. Conjugates situated in the outer, cornified half of the epidermis were incapable of eliciting the allergic response. The results furnish a basis for interpreting a common pattern of lesions in allergic contact dermatitis as it occurs in man.

STONE, S. H. & FREUND, J. (1958). **Hemorrhagic and necrotic reactions in guinea pigs during protracted anaphylactic shock.**—*Proc. Soc. exp. Biol., N.Y.* **99**, 333-336. [Authors' summary modified.] **1437**

A massive haemorrhagic reaction was observed at site of s/c inj. of large amounts of egg albumen in g.pigs sensitized with egg albumen incorporated in water-in-oil emulsions containing killed *M. tuberculosis* or killed *M. butyricum*. No haemorrhages were seen in g.pigs sensitized with paraffin oil adjuvants without mycobacteria, although their circulating antibody titres were comparable to those in g.pigs sensitized using mycobacteria.

G.pigs sensitized by i/d inj. of egg albumen in paraffin oil adjuvants with or without mycobacteria underwent a protracted but usually non-lethal anaphylactic shock after a s/c eliciting inj. of egg albumen. On the contrary, in g.pigs sensitized by i/d inj. of egg albumen in saline alone, death occurred in 39 to 66 min. and at P.M. examination there were manifestations of a combination of symptoms of acute (pulmonary emphysema) and protracted shock. In accordance with previous work, prolongation of the anaphylactic syndrome was associated with the presence of antibody in the circulation.

Protracted anaphylaxis did not cause grossly apparent haemorrhages at sites of reaction to P.P.D. tuberculin. I/v inj. of *S. typhi* or *E. coli* endotoxin 24 or 48 hours after the i/d inj. of P.P.D. caused haemorrhages at the sites of tuberculin reactions.

I. CLARINGBOLD, P. J. & SOBEY, W. R. (1958). **Studies in anaphylaxis. III. Re-examination of scores for anaphylaxis using four inbred lines of mice.** — *Aust. J. biol. Sci.* **11**, 434-441. **1438**

II. SOBEY, W. R., ADAMS, K. M. & SHORT, B. F. (1958). **Studies in anaphylaxis. IV. The effects of adjuvants and of *Haemophilus pertussis* on the antigenic properties of bovine plasma albumin in the mouse.** — *Ibid.* 442-456. [Authors' summaries modified.] **1439**

I. Two significant scores were calculated from anaphylactic tests in four inbred lines of mice. The dominant score proved to be highly correlated ($r = 0{\cdot}966$) with the score derived in Part I of this series [*V.B.* **28**, 467]. The implications of the second significant score are discussed. Differences between inbred lines in respect of anaphylactic score were found and the significance of this is discussed. Female mice were more susceptible to anaphylaxis than males.

II. An optimal shocking dose of 0·05 mg. for bovine plasma albumin was found over a wide range of alum-precipitated sensitizing doses. *H. pertussis*, alum, modified Freund's adjuvant, and a mixture of all three were equally effective as adjuvants in enhancing anaphylactic shock. Under certain conditions, *H. pertussis* had a depressing effect, but otherwise a marked enhancing effect, on anaphylactic shock in actively sensitized mice.

*See also absts.* **1282** (anthrax); **1288** (Middlebrook test in TB.); **1294** (Johne's disease); **1295** (melioidosis); **1297** (swine erysipelas); **1318-1336** (brucellosis); **1347** (leptospirosis); **1348** (enterotoxaemia);**1375** (coccidiosis); **1384** (F. & M. disease); **1387-1391** (rabies); **1393** (fowl pox); **1405** (rinderpest); **1406** (crossimmunity between rinderpest and dog distemper); **1413-1415** (swine fever); **1416-1418** (Teschen disease); **1425** (fowl plague); **1426-1427** (Newcastle disease); **1428** (avian infectious bronchitis); **1459** (allergic diagnosis of coenurosis); **1468** (lungworms).

## PARASITES IN RELATION TO DISEASE [ARTHROPODS]

THOMAS, P. L. & O'GRADY, B. (1958). **A quick method for applying insecticide dust to experimental small animals.**—*N. Z. J. agric. Res.* **1**, 522-524. **1440**

An apparatus is described for dusting g.pigs etc. with insecticide. The animals are put into the upper end of a square-sided chute 4 inches wide and 3 feet long inclined at 20° to the

ground. Dust is blown in from 4 nozzles in the sides; the electric blower is fed with dust from a hopper and the powder flow regulated by altering the flow of air through the air intake, using a moveable disk punched with holes of different sizes.

Marble dust incorporating 3% dieldrin was used in a trial experiment to control lice in a stock of several hundred g.pigs. The animals were passed through at the rate of 30 per min. and each received about 2·5 g. dust.

—W. N. Beesley.

Browne, L. B. (1958). **The choice of communal oviposition sites by the Australian sheep blowfly** *Lucilia cuprina*. — *Aust. J. Zool.* **6,** 241-247. [Author's summary modified.] **1441**

Large groups of eggs representing oviposition by a number of *L. cuprina* are frequently found on fleece preparations. The flies have a preference for ovipositing in cavities in the fleece, especially those near the moist cotton-wool plugs. The cavities are primarily attractive as places of high humidity and low illuminance. Of secondary importance is the preference for laying at places where other flies are already ovipositing.

I. Haupt, M. & Kirchner, M. (1958). Erfolgreiche Behandlung dasselbefallener Rinder mit Emittol. **[Treatment of warbles in cattle by administration of "Emittol".]**—*Dtsch. Landwirtschaft* **9,** 287-288. **1442**

II. Borchert, A. (1958). Der derzeitige Stand unserer Versuche zur Bekämpfung der Dasselplage. **[Control of warbles with "Emittol" and "Neguvon".]**—*Mh. VetMed.* **13,** 649-653. **1443**

III. Kretzschmar, K. (1958). Versuche zur Bekämpfung der Dassellarven des Rindes mit "Emittol". **[Control of warbles with "Emittol".]**—*Ibid.* 653-655. **1444**

I. "Emittol" is stated to be a phosphoric acid ester similar to "Neguvon", but the exact composition is not given. It was tried in 10 herds in East Germany in the winter of 1957/58; doses of from 100 to 146 mg./kg. body wt. were injected s/c. No larvae developed in 78 heifers given three doses, in November, December and January, while the average number of larvae developing in each of 119 untreated cattle in the same herds was 27. The results of double treatment (February and March) or single treatment (February) were not as satisfactory as those of triple treatment, although the number of larvae was lower than in controls. Some animals in each herd were given "Neguvon" by mouth and the results obtained from 1, 2 or 3 treatments were similar to those obtained with "Emittol".

II. B. gave further details of the trials reported above. "Emittol" was injected into the dewlap.

III. 222 heifers on 8 farms were injected with 40, 80 or 120 mg./kg. body wt. of "Emittol": 117 were given 3 injections (December, January and February) and 105 were given 2 injections (January and February). The best control of warbles was obtained with 3 injections of 80 or 120 mg./kg.: 58 of 66 cattle so treated remained free from warbles. It was concluded that 80 mg./kg. was an adequate dosage. Application to the skin of the back of a 2% soln. of "Emittol" in March killed the larvae present at the time, but it was necessary to repeat treatment after 3–4 weeks, which was a disadvantage in herds turned out to grass after the first treatment.—R.M.

Anon. (1959). **New cattle grub systemic.**—*Agric. Res., Wash.* **7,** No. 8. p. 15. **1445**

This brief note records that "Dowco–109" [O – (4-tert-butyl-2-chlorophenyl) O-methyl methylphosphoramidothioate] has been used successfully for killing warble fly larvae in cattle. Animals were treated in autumn by oral administration of the drug or by spraying. The drug is also known as "Narlene".—R.M.

Weaver, E., Posada, S. S., Swanson, L. E., Newland, H. W. & González, M. A. (1958). **Use of Narlene for the control of nuche in cattle.**—*Quart. Bull. Mich. agric. Exp. Sta.* **41,** 2-18. **1446**

This is an illustrated account of infestation of cattle in Colombia with larvae of "the nuche", *Dermatobia hominis*. The authors also reported on the use of "Narlene" [see preceding abst.] in 167 cattle. The drug was given by mouth [dose not stated] or applied as a spray containing 1% of the drug. Some animals were given injections of the drug, and s/c inj. appeared to give better results than i/m, but full results were not given and there were stated to be practical difficulties in injecting the drug. Both oral administration and spraying gave similar results in killing a high proportion of larvae. Re-infestation appeared to occur between 52 and 85 days after treatment.—R.M.

Tatchell, R. J. (1958). **The physiology of digestion in the larvae of the horse bot-fly,** ***Gasterophilus intestinalis*** **(de Geer).**—*Parasitology* **48,** 448-458. **1447**

Larvae of *G. intestinalis* occasionally fed

on blood but they normally fed on tissue exudate. Digestive enzymes of the larvae were studied.—R.M.

SPILLER, D. (1958). **Variations in the insecticide tolerance of insects.** — *Nature, Lond.* **182,** 1177. **1448**

The author briefly reviews our knowledge of variations in insecticide tolerance. There has not yet been any direct estimate of how much of the unselected tolerance is genetically determined and how much due to environmental effects: it may be that non-genetic variation predominates very considerably and certainly it does seem that some of the variation in tolerance may be altered independently of any change in gene frequency.

It was formerly believed that genes for resistance are extremely rare, but it has recently been found that there may be as many as 12% of dieldrin-resistant heterozygotes in *Anopheles gambiae* populations in areas never treated with this insecticide.—W. N. BEESLEY.

ANON. (1958). **New pesticides for 1959.**—*Agric. Chemic.* **13,** 34-36; 110 & 119. **1449**

This article mentions a new acaricide, "Delnav" [2, 3-p-dioxanedithiol-S, S-bis (O, O-diethyl phosphorodithioate)] as being effective against external parasites of livestock when applied to the skin. No details are given.—R.M.

GRÉGOIRE, C., COTTELEER, C. & POUPLARD, L. (1958). Etude du pouvoir acaricide du lindane, du DMC et du DDT. Synergisme et antagonisme. **[Acaricidal action of BHC, DMC and DDT: synergy and antagonism.]** —*C. R. Soc. Biol., Paris* **152,** 1022-1025. **1450**

The three insecticides were tested alone or combined for their lethal action on *Psoroptes cuniculi*. A combination of DDT and DMC was synergic, but a combination of BHC and DMC was strongly antagonistic.—R.M.

BENOIT, P. L. G. (1958). Cnemidocoptes-schurft van de parkeit *Melopsittacus undulatus* in Belgie. **[Cnemidocoptic mange in budgerigars in Belgium.]** — *Vlaams diergeneesk. Tijdschr.* **27,** 240-243. [In Flemish. Summaries in English, French and German.] **1451**

G. identified *Cnemidocoptes pilae* as the cause of "scaly leg" in budgerigars for the first time in Belgium. 13 of 21 cases were successfully treated with 0·2% gamma BHC in soft paraffin and arachis oil.—R.M.

*See also absts.* **1371** (Colonial Office report on tsetse flies and trypanosomiasis); **1392** (mosquitoes transmitting fowl pox); **1411** (Middelburg virus of sheep isolated from mosquitoes); **1527** (animal diseases in North Peru); **1596** (toxicity of BHC in milk to flies); **1647** (book, parasitic animals).

## PARASITES IN RELATION TO DISEASE [HELMINTHS]

OLLERENSHAW, C. B. (1958). **Climate and liver fluke.**—*Agriculture, Lond.* **65,** 231-235. **1452**

Two important factors influencing the numbers of liver fluke are moisture and temperature, for they affect the hatching of the ova, the viability of the encysting cercariae, and the population of snails. The life cycle of the parasite requires that rainfall exceeds evaporation for 3 months in that period of the year when temp. does not limit development (May–October in Gt. Britain). In Anglesey, where September and October are nearly always wet, the occurrence and severity of liver fluke infestation can be predicted by observation of the weather in the other summer months.—M.G.G.

KLEKOVKIN, L. N. & SIPAKOV, V. N. (1958). **[Control of fascioliasis in the Mogilev oblast.]** —*Veterinariya, Moscow* **35,** No. 6 pp. 16-19. [In Russian.] **1453**

A control campaign embracing 40 collective farms was based on pasture management and regular anthelmintic treatment of all stock. Cattle were treated with hexachloroethane in autumn and spring (at the beginning and end of winter housing), and sheep were treated with carbon tetrachloride, injected into the rumen or subcutaneously, in October/November and again in January/February. In 1957 45,000 cattle and 149,000 sheep were treated. After 4 years the number of infected herds had fallen from 85 to 7 and infected flocks from 256 to 56. Clinical cases of fluke infestation fell from 2,170 to 42 in cattle and from 17,000 to 2,500 in sheep. At the start of the campaign infestation was found in 72% of slaughtered cattle and 12% of slaughtered sheep. After 4 years these figures were reduced to 16% and 3% respectively. Importance was attached to education of farm workers and to monthly conferences of the 20 collaborating veterinary surgeons.—E. L. URCH.

OSBORNE, H. G. (1958). **Observations on the seasonal incidence of acute fascioliasis and infectious necrotic hepatitis (black disease) in sheep.**—*Aust. vet. J.* **34,** 301-304. [Author's summary modified.] **1454**

Outbreaks of acute fascioliasis and infectious necrotic hepatitis (black disease) in sheep in the New England district of N.S.W. have a

marked winter incidence. During three years 18 of 27 outbreaks occurred in June, July and August.

The factor determining this incidence is the onset of conditions which force the sheep to graze selectively the moister and consequently fluke-infested portions of their paddock.

It is suggested that the selective grazing of fluke-infested areas during dry periods is the primary factor determining the seasonal incidence of acute fascioliasis and black disease in Australia and not, as was previously believed, the seasonal conditions which determine the time at which cercariae emerge from the snails.

SOBRERO, R. (1958). Alterazioni del fegato nella schistosomiasi dei bovini somali. **[Liver lesions due to schistosomiasis in Somali cattle.]**—*Riv. Parassit.* **19,** 113-116. [Summary in English.] **1455**

S. described a specific form of nodular sclerosis of the liver in Somali cattle, caused by adult *Schistosoma bovis,* which differed from the cirrhotic liver lesions in man infested with ova of *S. mansoni* and *S. japonicum*.—E.G.

LITVISHKO, N. T. (1958). **[Diagnosis of bilharzia infection in domestic ducks.]**—*Veterinariya, Moscow* **35,** No. 9 pp. 70-72. [In Russian.] **1456**

Examination of blood or faeces of ducks for ova of *Bilharziella polonica* did not give reliable results. Diagnosis was made by finding adult trematodes in the abdominal blood vessels, liver or gall bladder. 45 ducks of various ages were examined and 43 were infested.—R.M.

MCCAULEY, J. E. (1958). **A new method for examining snails for trematode parasites.** —*J. Parasit.* **44,** 243-244. **1457**

If the tip of a snail shell is ground away, the snail inserted into the end of a rubber tube so that the filed tip is protuding, and gentle air pressure applied from the other end of the tube, the hepato-pancreas is forced out of the shell and can be examined under a dissecting microscope. Gentle suction on the tube withdraws the organ and the hole is sealed with wax.—M.G.G.

RAUSCH, R. & WILLIAMSON, F. S. L. (1958). **Studies on the helminth fauna of Alaska. XXXIII. The description of *Diphyllobothrium alascense* n. sp. (Cestoda).**—*Z. Tropenmed. u. Parasit.* **9,** 64-72. [In English. Summary in German.] **1458**

*Diphyllobothrium alascense* n. sp. was found P.M. in ten sledge dogs in Alaska. It differed from other diphyllobothria by the shape of its scolex. Since its intermediate host is probably a certain species of fish which is commonly eaten raw by Eskimos and dogs alike, occurrence of this parasite in man is probable.—E.G.

ISMAGILOVA, R. G. (1958). **[Allergic diagnosis of coenurosis in sheep and cattle.]** — *Veterinariya, Moscow* **35,** No. 5 pp. 61-64. [In Russian. Summary in English.] **1459**

The author described the preparation of allergens from coenurus fluid and from scolices. The former gave correct results in diagnosing coenurus infestation but also false-positive reactions with other cestodes. Scolex allergen detected 97% of coenurus infestations. Allergen was inj. i/d into the upper eyelid in doses of 0·2 ml. for sheep and 0·5–0·75 ml. for cattle. The result was read 2–3 hours later. Swelling of the eyelid was measured by calipers between the anterior and posterior extremities of the eyelid; swellings of 2·6 cm. or more in sheep and 4·6 cm. or more in cattle were regarded as positive. 239 experimentally infected sheep were tested: the test first became positive 12 days after infection.—R.M.

MERLE, A. (1958). Les cysticercoses communes à l'homme et aux animaux. **[Cysticercoses in man and animals.]**—*Bull. Off. int. Epiz.* **49,** 483-500. **1460**

The incidence of cysticercosis in pigs and cattle and of taeniasis in man is given for countries in Europe, Africa, Asia, and Australia. Cysticercosis is rare or absent in pigs in most European countries, but in parts of Africa the incidence is high in both pigs and cattle. It is exceptional in Australia and does not exist in New Zealand. The methods of dealing with affected animal carcasses in different countries are summarized.—M.G.G.

LORD, R. A. (1958). **Studies on the use of cortisone and ACTH in trichinosis.**—*Amer. J. trop. Med. Hyg.* **7,** 611-617. **1461**

Experiments on rats indicated that corticotrophin (ACTH) minimized loss of weight, decreased mortality, prolonged survival, slightly reduced eosinophilia, but did not change the reaction of tissues to the parasite. Cortisone had no beneficial effect and was toxic in high doses. —R.M.

JANSEN, J. (1958). Lebmaagtrichostrongyliden bij Nederlandse herten. **[Trichostrongylids in the abomasum of deer in the Netherlands.]** —*Thesis, Utrecht* pp. 100. [In Dutch. Summary in English.] **1462**

J. identified 16 species of nematodes in the abomasum of roe deer, 9 in red deer and 13 in

fallow deer. Some had not been recorded in deer before. It was considered that deer were not important sources of infestation of farm animals with trichostrongylids, except in the case of *T. axei* in roe deer.—R.M.

CAUTHEN, G. E. (1958). **Inefficacy of rabbits for testing anthelmintics to be used against gastro-intestinal nematodes of ruminants.**—*J. Parasit.* **44,** 246. **1463**

Administration of phenothiazine, piperazine, or "Cu-nic" had little or no effect on experimental *Trichostrongylus axei* infection in rabbits.—M.G.G.

ROSE, J. H. & KEYMER, I. F. (1958). **An outbreak of ornithostrongylosis in domestic pigeons.**—*Vet. Rec.* **70,** 932-933. [Authors' summary modified.] **1464**

An account is given of the symptoms and gross pathology in 3 of the 7 pigeons which died, together with an illustrated description of the parasite.

BLACK, W. J. M., THOMAS, R. J. & GREASLEY, J. (1958). **The control of nematodirus infestation by preventive treatment.**—*Brit. vet. J.* **114,** 470-477. **1465**

Eight groups, each of 4 ewes and 8 lambs, were placed on 8 plots heavily contaminated with nematodirus eggs. In 4 groups half of the lambs were drenched, at intervals of 11–14 days, with 1 oz. of acidic piperazine phosphate and the other half with 5 ml. of Bayer 414 (containing copper sulphate, carbon tetrachloride and other ingredients). The number of *N. battus* eggs in the faeces was greatly reduced by treatment, the peak being 218 eggs per g. in lambs given piperazine, 328 in those given Bayer 414, compared with 1063 in control lambs. The number of *N. filicollis* eggs, however, was not greatly affected, and counts of trichostrongyle eggs were much higher in treated than in control lambs. No clinical signs of disease nor even pronounced scouring were observed, despite the high egg counts in controls. It is not known whether the drugs eliminated *N. battus* or merely inhibited egg production. Nevertheless, this treatment would reduce the contamination of pasture by lambs and should be of value on farms where rotational grazing is not practised.—M.G.G.

BECKLUND, W. W. & ALLEN, R. W. (1958). **Worm parasites of cattle in New Mexico and Arizona.**—*Vet. Med.* **53,** 586-590. [Authors' summary modified.] **1466**

P.M. examinations for parasitic worms were made on five Arizona and six New Mexico cattle. Nine species of gastro-intestinal nematodes representing six genera were recovered. Total worm count per individual animal ranged up to 2,312. The species and their percentage incidences were as follows: *Haemonchus placei,* 36; *O. ostertagi,* 36; *T. axei,* 27; *Cooperia punctata* males, 55; *C. oncophora* males, 45; *C. pectinata* males, 0·9; *C. mcmasteri* males, 0·9; *Cooperia* females, 64; *Nematodirus helvetianus,* 55; and *Oe. radiatum,* 64.

A total of 186 faeces samples were collected from cattle on dry range, mountain range, or irrigated pasture. Nematode eggs occurred in 65% of the samples, but the egg counts were low, with a maximum of 400 per g. of faeces. The most prevalent eggs were tentatively identified as *Cooperia* and *Haemonchus.* Fasciola eggs were removed only in samples from cattle grazed on mountain range. No dictyocaulus larvae were found.

CLARKE, E. A. & FILMER, D. B. (1958). **Studies in hogget rearing. II. The role of parasites in hogget ill-thrift.**—*N. Z. J. agric. Res.* **1,** 382-417. **1467**

An account of 7 trials to determine to what extent nematodes are responsible for ill-thrift in hoggets in New Zealand. (1) There was no difference in the level of parasitism or liveweight gain between hoggets rotationally grazed and others on set stocking while a third group on a dairy pasture showed better liveweight gains and somewhat lower faecal worm egg counts. However all three groups suffered a setback in their growth in March which did not appear to be related to any change in worm burden. (2) One of two rotationally grazed groups was regularly dosed with phenothiazine; a third group again grazed a dairy pasture. Although worm counts of the dosed group were considerably lower than those of the undosed group and slightly lower than those of the dairy pasture group, both dosed and undosed sheep grew at the same rate while the sheep on the dairy pasture grew considerably faster. (3) Regularly dosed and undosed hoggets running together on the same pasture were compared. There was a great difference in worm egg counts. Both groups grew well until March and then poorly until May. The difference in weight which developed between the two groups was relatively small. (4) Regularly dosed and undosed control hoggets were compared under conditions of rotational grazing and an effort was made to control *Haemonchus contortus* in the control group by means of a single dose of coarse particle phenothiazine. Periodically animals were slaughtered and P.M. worm counts made.

Growth curves were very similar despite heavy worm burdens in the controls. Ill-thrift developed in both control and dosed animals and a small difference in weight which developed after ill-thrift had persisted for two months suggested that parasites played only a minor role. (5) Regularly dosed hoggets run at a light rate of stocking on beef pastures remained relatively free from worms and grew well throughout the autumn and winter but no better than controls with a moderate burden consisting mainly of *Trichostrongylus* spp. (6) Ill-thrift occurred in virtually worm-free hoggets in the presence of abundant feed. Ill-thrift in parasitized controls was not more severe until mild haemonchosis developed. (7) Phenothiazine dosing *per se* had no harmful effect on liveweight gain. The authors concluded that thriftlessness in hoggets in autumn is not primarily associated with nematode parasites though *H. contortus* may exert an appreciable effect on liveweight gain. —J. F. MICHEL.

WEBER, T. B. (1958). **Immunity in cattle to the lungworm, *Dictyocaulus viviparus*: a test of the persistence of acquired resistance.**—*J. Parasit.* **44,** 244-245. **1468**

Two calves which survived a lethal dose of 50,000 lungworm larvae when inoculated i/v with immune serum were exposed 2 years later, at the age of 30 months, to a similar dose of larvae. Neither showed pronounced clinical symptoms, and at slaughter only a few immature worms were found. Two control 30-month-old cattle not previously exposed to lungworms nor given immune serum were also given 50,000 larvae. Both developed a patent infection, and in one it was severe. An 8-year-old cow that received 100,000 lungworm larvae did not develop a patent infection and no lungworms were found at P.M. examination.—M.G.G.

WADE, A. E. & SWANSON, L. E. (1958). **Lungworm infections in calves produced by subcutaneous injections of larvae.**—*Amer. J. vet. Res.* **19,** 792-793. [Authors' summary modified.] **1469**

Viable lungworm larvae administered s/c in the cervical, flank, and gluteal regions produced lungworm infections in calves. Signs of lungworm infection first appeared 13–17 days after the initial injection of larvae, with prepatent periods of 24–28 days.

These infections were clinically similar to infections produced by oral administration of larvae.

EMDIN, R. (1958). Sulle alterazioni dei linfonodi periepatici nell'epatite parassitaria eosinofilica a focolai nel suino. **[Changes in the portal lymph nodes of pigs with parasitic hepatitis.]** — *Ann. Fac. Med. vet. Pisa* **10,** 237–242. [Summaries in English and French.] **1470**

The gross and histological changes in the portal lymph nodes of pigs with parasitic hepatitis are described. The lesions are ascribed to an inflammatory process set up by irritant toxic substances of parasitic origin.—T.E.G.R.

EUZÉBY, J. (1958). **Prevention of parasitic diseases among sheep and cattle at pasture.** In "Control of diseases in cattle and sheep at pasture" pp. 21-40. Paris: The European Productivity Agency of the Organisation for European Economic Co-operation. **1471**

A discussion of active preventive measures (control of sources of parasites and treatment of infested pastures) and defensive measures (individual anthelmintic treatment).—R.M.

GREENBERG, J., SEYMOUR, W. E. & MCEWEN, A. F. (1958). **Effect of varying doses of piperazine citrate on puppies.**—*Vet. Med.* **53,** 609-610. [Authors' summary modified.] **1472**

Piperazine citrate administered in the food in a dose of 2·7 g./kg. body wt. to young dogs did not cause vomiting. The drug was completely effective against ascarids. As the dose was increased in young puppies vomiting occurred. Younger and smaller puppies were more sensitive to increased doses than older dogs. Kittens were not as sensitive as puppies.

GOODWIN, L. G., JAYEWARDENE, L. G. & STANDEN, O. D. (1958). **Clinical trials with bephenium hydroxynaphthoate against hookworm in Ceylon.**—*Brit. med. J.* 27th December, 1572-1576. [Authors' summary modified.] **1473**

Bephenium, a new anthelmintic, was compared with tetrachlorethylene in the treatment of 284 human cases of hookworm infection in Ceylon. Bephenium hydroxynaphthoate was selected as the most suitable salt. A single dose of 2 or 3 g. of base, or multiple doses given on successive days or three times on the same day, compared favourably in effectiveness with tetrachlorethylene.

No toxic side-effects were observed with large doses of bephenium. The hydroxynaphthoate was particularly suitable for the treatment of patients with advanced anaemia, diarrhoea, and heavy hookworm infections because of its

low toxicity and because no purge was necessary. It was also effective against roundworm, present as a concurrent infection in 85 of the patients treated with this drug. Tetrachlorethylene was ineffective against roundworm in 16 patients treated.

*See also absts.* **1640** (report, India); **1646** (report, Belgian Congo); **1647** (book, parasitic animals).

## SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

MONTRONI, L. (1958). Insuloma di un bovino. Accrescimento intravascolare nella cava. **[Insuloma in a bull.]** — *Zooprofilassi* **13,** 451-452. **1474**

In 1932, insuloma was described by M. as a rare tumour. Subsequent observations, however, revealed such frequent occurrence that he considers it one of the commonest types of neoplasm in cattle. The gross, histological metastatic and invasive characters are briefly described. A coloured photograph shows the growth in the vena cava; two photomicrographs show the histological changes.—T.E.G.R.

GANS, J. H. (1958). **Carcinoma of the pancreas in the dog.**—*Cornell Vet.* **48,** 372-377. **1475**

A poorly-differentiated adenocarcinoma of the body of the pancreas of a nine-year-old bitch let to obstruction of the duodenum, and obstructive jaundice. Metastases were present in the liver.—E. COTCHIN.

STÜNZI, H. & SUTER, P. (1958). Zur Pathologie der Pankreaskrebse bei Carnivoren. **[Pathology of pancreatic carcinoma in carnivores.]** —*Mh. VetMed.* **13,** 251-256. **1476**

The authors reviewed the literature on pancreatic carcinoma and gave details of the conditions in 3 dogs and 2 cats. These cases represented 0·2% of dogs and 0·15% of cats examined P.M. at Zürich. Obstructive jaundice was present in the dogs and one cat.—R.M.

SANE, C. R., MARATHE, M. R. & PUROHIT, B. L. (1958). **Infertility in buffaloes due to neoplastic growths of the genital tract.**—*Indian vet. J.* **35,** 581-585. **1477**

Fibromatous tumours were suspected to be the cause of infertility in two multiparous buffaloes, 7 to 8 years old. Surgical removal of the growth in one was followed by oestrus and conception.—R. N. MOHAN.

BRODEY, R. S. & MARTIN, J. E. (1958). **Sertoli cell neoplasms in the dog. The clinico-pathological and endocrinological findings in thirty-seven dogs.**—*J. Amer. vet. med. Ass.* **133,** 249-257. **1478**

The average age of the affected dogs was 9·3 years (3–20). Twenty of 37 cases had alopecia. Gynaecomastia was seen in 16 dogs, all except one of which also had alopecia. Five dogs attracted other male dogs. In four of these dogs with feminization, there was marked prostatic enlargement—one dog died with resultant peritonitis, and one with uraemia and septicaemia.

Of 31 affected dogs, the right testis was involved in 22, the left in 5, and both in 4. Twenty of the unilateral tumours were in extrascrotal testes (13 abdominal, 7 inguinal). Four dogs showed metastases. The tumours were removed from 15 dogs showing feminization: in at least 12 the symptoms regressed.

Bioassays for total oestrogen in the urine (vaginal smear method) of 6 dogs with feminizing tumours showed 44 to 64 mouse units (per 24 hours). From 5 of these dogs, postoperative samples on the 3rd or 4th day contained 12 mouse units or less per 24 hours.

Reference is made to tissue culture of tumour material from one case, and successful tumour transplants to other dogs.— E. COTCHIN.

NIELSEN, S. W. & COLE, C. R. (1958). **Canine mastocytoma—A report of one hundred cases.** —*Amer. J. vet. Res.* **19,** 417-432. **1479**

There is an extensive review of the condition, and a well-illustrated discussion and tabular summary of 92 biopsy and 8 necropsy specimens, constituting 20% of the total number of canine cutaneous neoplasms examined in an 8-year period. The lesions varied from 1 × 1 to 12 × 12 cm. in area, and 15% were located on the external genital organs. There was evidence of malignancy in 28 dogs (9 of these had multiple skin lesions). Recurrences (noted in 17 dogs) developed after 2 weeks to one year following operation. Metastases were found in 16 dogs, being present in lymph nodes (14), spleen (4), liver (4), jejunum and lungs (each 1). There was a breed disposition of Boston Terriers and to a lesser extent Boxers, but no significant sex difference in incidence was noted. The histology of the lesions is described in detail.

—E. COTCHIN.

RENK. (1958). Über Retikulosen und Lymphogranuloma bei Hunden. **[Reticulosis and**

**lymphogranuloma in dogs.**]—*Zbl. allg. Path. path. Anat.* **98,** 214-215. **1480**

R. recorded 2 cases of proliferation of reticular cells giving rise to multiple neoplasms in subcutaneous fat and visceral organs (male Collie aged 8 years) and under the skin and in the cranial cavity (male Boxer aged 8 years); also 6 cases of granulomatous tumours in lymph nodes, which may have been lymphogranulomas.—R.M.

GUARDA, F. (1957). Su di un cisto-adenocarcinoma dell'ovaio a metastasi multiple nel pollo. Contributo anatomo-patologico ed istologico. **[Cystic adenocarcinoma of the ovary in a fowl.]**—*Ann. Fac. Med. vet. Torino* **7,** 205-215. [Summaries in English, French and German.] **1481**

An account of adenocarcinoma with metastases in the liver in a 3-year-old hen is given. A bunch of about 500 cysts was attached to the ovary and filled the body cavity.—T.E.G.R.

COTCHIN, E. (1958). **Neoplasia in domesticated animals: a subject for study in practice, abattoir, and laboratory.**—*Vet. Rec.* **70,** 752-755. **1482**

With a view to enlisting the co-operation of more veterinary practitioners and abattoir veterinarians in the study of tumours of domesticated animals, the clinical importance and value of their observations and details of the information required by the Pathological department of the Royal Veterinary College are outlined. A few more specific points concerning certain tumours which seem to offer possibilities for closer study within the limits which are at present possible are discussed. These tumours include lymphosarcoma, melanomas, alimentary cancer in the dog and cat, mammary and testes tumours and bone sarcoma in dogs, and carcinoma of the glans penis of horses.

—A. ACKROYD.

SUGIURA, K. (1958). **Effect of hydrogen peroxide on transplanted rat and mouse tumours.** —*Nature, Lond.* **182,** 1310-1311. **1483**

The oral administration of 0·3, 0·45 or 0·9% of hydrogen peroxide in distilled water, in place of normal drinking water, had no inhibitory effect on the growth of sarcoma 180, adenocarcinoma E 0771 or Mecca lymphosarcoma transplanted subcutaneously in mice, nor on Walker carcinosarcoma similarly transplanted in rats. Using sarcoma 180 or Ehrlich carcinoma ascites tumours, daily intraperitoneal injection, from the day following intraperitoneal inoculation of the ascites tumour, of 15–150 mg./kg. of hydrogen peroxide had no inhibitory effect on either tumour, while a dose of 225 mg./kg. had a moderate inhibitory effect on sarcoma 180 ascites tumour.—E. COTCHIN.

WEISS, E. (1958). Mastzellenleukose beim Hund. **[Mast-cell leucosis in a dog.]**—*Mh. VetMed.* **13,** 33-35. **1484**

This rare condition occurred in a Boxer aged 5 years. Clinical features were numerous ulcerative skin nodues, enlarged axillary lymph nodes, fever and emaciation. The skin lesions were mast-cell tumours, and there was proliferation of mast cells in the lymphatic system.

—R.M.

BECKER, C., BEAUDREAU, G. S. & BEARD, J. W. (1958). **Glucose and lactate studies in avian leukemias.** — *Abstr. Commun. IVth int. Congr. Biochem., Vienna* (Int. Abstr. biol. Sci. Suppl.) p. 79. [Authors' abst. modified.] **1485**

Chickens infected with myeloblastosis or erythroblastosis die in profound terminal hypoglycaemia. Plasma glucose levels of 38 chickens measured within 12 hours of death showed falls of 9·6 mol./ml. from normal levels of 13 mol./ml. determined in the same chickens three days before death. In erythroblastosis, plasma lactate is significantly raised above normal. In some birds with myeloblastosis in which white cell counts are high, lactate levels are elevated. Studies of whole blood *in vitro* show that in both types of leucaemia the blood utilizes 2 to 8 times as much glucose as normal chicken blood; this results in elevated lactate in the blood from birds with erythroblastosis. In contrast, blood from birds with myeloblastosis shows a marked fall in lactate under such conditions. This metabolic difference becomes more apparent when washed myeloblasts or washed erythroblasts are studied in tissue culture. These studies suggest that the rate of glycolysis of the erythroblast exceeds the oxidative consumption of pyruvate, as evidenced by an increase in lactate. The myeloblast, on the other hand, does not appear to follow the pattern ascribed to neoplastic cells because the consumption of the end product of glycolysis is equal to or greater than its production, as evidenced by the utilization of lactate even in the presence of glucose.

## NUTRITIONAL AND METABOLIC DISORDERS

KEFFORD, N. P. (1958). **Lignification of plants in relation to ruminant nutrition.**—*J. Aust. Inst. agric. Sci.* **24,** 297-302. **1486**

This article is a review of the major viewpoints presented at a symposium, arranged by C.S.I.R.O., held in Canberra, 1957. It gives a brief summary of the morphology and chemical structure of lignin and its synthesis and decomposition. The effects of lignification of plants on ruminant nutrition are considered with regard to digestibility, appetite and efficiency of conversion of plant into animal tissues.

Speculation is made concerning investigation and control of lignification in plants, and the possible consequent improvement of nutritive value of pastures.—T. GRAINGER.

SNOOK, L. C. (1958). **Supplying urea to stock through drinking water.**—*J. Aust. Inst. agric. Sci.* **24,** 357-358. **1487**

Pen trials were conducted to investigate the possibility of supplying urea to sheep in the drinking water. Up to 15 g. per day was given in this way without the occurrence of toxicity. However, toxicity occurred in two field trials when a concentration greater than the planned 4·2 g. urea/gal. was formed in some tanks following replenishment of urea. The sheep had drunk from the tanks to irregular levels.

—T. GRAINGER.

WHITING, F., CONNELL, R. & FORMAN, S. A. (1958). **Silica urolithiasis in beef cattle.** —*Canad. J. comp. Med.* **22,** 332-337. [Summary in French.] **1488**

Over 90% of calves used in a group of feeding experiments developed urinary calculi. Rations of native prairie hay and grain with increased amounts of calcium or silica failed to increase the incidence of uroliths. Prairie hay from an area where obstructive urolithiasis was a problem did not appear to increase the incidence of urolithiasis when fed to normal calves, but a greater quantity of calculous material appeared in the urinary organs of these calves than in calves fed prairie hay or lucerne from other areas. Calves given sodium chloride, ½lb. daily, had less calculous material in the urinary organs than calves on a salt-free diet.

Calves from a ranch where obstructive urolithiasis was common were slaughtered at different age periods and examined. Calves at 8 weeks of age were found to be comparatively free from uroliths but two of six calves at 14 weeks had them, as had five of six calves at 18 weeks of age. Over 80% of calves slaughtered in winter when 10 months of age had urolithic material in the urinary organs.

—R. V. L. WALKER.

I. MULHEARN, C. J. (1958). **Unthriftiness of weaner sheep in South Australia.**—*Aust. vet. J.* **34,** 383-390. Discussion: pp. 400-401. **1489**

II. ENGEL, A. E. (1958). **Unthriftiness of weaner sheep in south-western Victoria.**—*Ibid.* 391-397. Discussion: pp. 400-401. **1490**

III. BENNETTS, H. W. (1958). **Unthriftiness of weaner sheep in Western Australia.**—*Ibid.* 398-400. Discussion: pp. 400-401. **1491**

I. An investigation of unthriftiness of weaner sheep was made in two localities. Supplements of high and low protein and high and low energy value were used to supplement dry summer pastures and to overcome weight losses. Supplementation was effective in both preventing and correcting unthriftiness, and a better response was obtained from protein rather than energy supplementation.

II. This trouble tends to occur in late summer and late winter when low nutrient intake, caused by overstocking, has been associated with severe outbreaks of internal parasitism, mainly of *Trichostrongylus* spp. and *Ostertagia* spp. Three different drenching programmes with phenothiazine and bluestone–nicotine were carried out in a trial without a control group. Differences in wool production occurred between the treatment groups but no differences in body weight performance were observed.

III. A description of the malady is given and a method of management is described which has been successfully employed on two properties to combat the decline in condition.

—T. GRAINGER.

VOELKEL, Z. (1958). Badania nad niedokrwistością prosiąt. **[Piglet anaemia.]**—*Méd. vét., Varsovie* **14,** 414-418. [In Polish. Summaries in English and Russian.] **1492**

Blood sampling of piglets from 16 litters revealed that, starting on the second day of life, there is a gradual fall in the level of haemoglobin and the numbers of w.b.c. and r.b.c. The critical period extends from the 7th to the 15th day of life. A mixture of cobalt, copper sulphate and ferrous sulphate had no effect when given prophylactically to the sows and only slight effect when given to piglets. Folic acid, liver extract and tincture of saccharated iron oxide had no effect when used as therapeutic agents.— M. GITTER.

BLAXTER, K. L. (1958). **Nutrition and climatic stress in farm animals.**—*Proc. Nutr. Soc.* **17,** 191-197. **1493**

B. discussed literature on the critical temperature of farm animals, and requirements for calories and other nutrients of animals kept below the critical temp.—R.M.

BOUCKAERT, J. H. & PHILLIPSON, A. T. (1958). **Metabolic disorders.** In "Control of diseases in cattle and sheep at pasture" pp. 41-56. Paris: The European Productivity Agency of the Organisation for European Economic Co-operation. **1494**

Bouckaert discussed indigestion, biochemical aspects of functional disorders of the rumen, and function of the omasum. Phillipson discussed recent work on bloat.—R.M.

DAVENPORT, P. G. (1958). **A survey of losses due to bloat in dairy cows in the Bay of Plenty.**—*N. Z. vet. J.* **6,** 138-139. [Author's summary modified.] **1495**

Of 75,418 cows 868 (1·15%) died from bloat in a year and a further 519 were treated surgically by puncture of the rumen; 51% of deaths were due to bloat.

EMERY, R. S., SMITH, C. K. & HUFFMAN, C. F. (1958). **Feeding penicillin for control of bloat in grazing cattle, and its effect on milk production.**—*Quart. Bull. Mich. agric. Exp. Sta.* **41,** 460-467. [Authors' summary modified.] **1496**

The incidence of pasture bloat was reduced by about two-thirds by feeding 100 mg. procaine penicillin per cow daily, either with the grain or in salt. The efficiency of treatment appeared to decrease as the season progressed, but bloat incidence in all groups, including controls, also showed a decline. An average incidence of bloat of 9·7% with a mortality of 4·2% of the bloated animals occurred in 739 cows over a 150-day pasture season, but bloat incidence varied greatly between farms.

It was recommended that farms with a bloat incidence higher than this average should feed 50 mg. procaine penicillin per cow daily and gradually increase the dose to 100 mg. as the season progressed.

PETERSEN, C. F., SAUTER, E. A., CONRAD, D. H. & ANDERSON, G. J. (1958). **The influence of penicillin in the diet of White Leghorn hens upon production and shell quality of eggs.**—*Poult. Sci.* **37,** 796-801. **1497**

Procaine penicillin at 4, 20, or 100 g. per ton of food for 10 months did not improve the yield, size or shell quality of hens' eggs.

—M.G.G.

HOLM, L. W. (1958). **Some aspects of glucose metabolism in calves after prolonged gestation.** — *Amer. J. vet. Res.* **19,** 842-847. [Author's summary modified.] **1498**

Carbohydrate and electrolyte metabolism was studied in 6 calves delivered from Holstein-Friesian cows with gestation periods of 35 to 62 days beyond normal.

The concentration of blood electrolytes was essentially normal, but the concentration of reducing sugars in the whole blood was abnormally low and decreased rapidly during the first 4 hours of extra-uterine life. Since the decrease in blood fructose was essentially normal, a defective glucose metabolism is suggested. There was consistent hypoglycaemia, even when the calves were fed at four-hour intervals or given intravenous infusions of glucose solutions. One calf also showed a lower glucose tolerance than did normal new-born calves.

All calves died or were killed in severe hypoglycaemic states.

When glucose was infused intravenously, the loss of glucose, potassium, and chloride in the urine was greater in these calves than in the normal new-born calf. The loss of glucose *via* the urine was not of sufficient magnitude to implicate renal mechanisms alone in the declining level of blood sugar found in the overdue calf.

REID, R. L. (1958). **Studies on the carbohydrate metabolism of sheep. VII. Intravenous glucose and acetate tolerance tests.** — *Aust. J. agric. Res.* **9,** 788-796. [Author's summary modified.] **1499**

Intravenous glucose and acetate tolerance tests were carried out on sheep fed a variety of diets. The disappearance of injected glucose and acetate appears to follow an exponential function in respect of time.

On all diets used, the rate of disappearance of acetate was slower than in non-ruminants. The rate of glucose disappearance was slow in sheep fed roughage diets but rates as high as those normally observed in man were recorded on high intakes of a diet containing 50% of cracked maize.

On varying dietary regimens, variations in the rate of disappearance were in the same direction and of a similar order of magnitude for both glucose and acetate. Rates were considerably decreased during fasting.

The data are discussed in the light of other

data on tissue utilization of glucose and acetate in ruminants and in relation to present knowledge of metabolic differences between ruminants and non-ruminants.

SANGER, V. L., SCOTT, L., HAMDY, A., GALE, C. & POUDEN, W. D. (1958). **Alimentary toxemia in chickens.** — *J. Amer. vet. med. Ass.* **133,** 172-176. **1500**

During 1957, a new disease affecting broiler chickens and laying hens was encountered in the U.S.A. Clinical signs included dyspnoea, wobbly and unsteady gait, stunting, subcutaneous oedema and sudden deaths. At P.M. examination, ascites, oedema, haemorrhages, degeneration in the myocardium and kidneys and necrosis of the liver were the principal findings. The mortality rate was up to 50%. No infectious agent has been recovered. Although the condition somewhat resembled acute salt and certain plant poisonings and vitamin E deficiency, no description which paralleled it has been found in the literature. Experimentally the feeding of certain samples of fat has caused the condition, but none of these had come directly from primary rendering or extraction processes.

—A. ACKROYD.

YUSKEN, J. W. & REBER, E. F. (1957). **Effects of feeding baby pigs a diet deficient in sodium.**—*Trans. Ill. Acad. Sci.* **50,** 118-123. [Authors' summary modified.] **1501**

Five pigs were fed a synthetic ration which contained 9·4 mg. of sodium per 100 g. of ration, from 7 to 15 weeks of age. Sodium balance and blood composition were studied to assess the effects of sodium deprivation. The pigs did not thrive, ate poorly, drank little water and either showed poor gains in body weight or losses. The tendency for high blood urea nitrogen or non-protein nitrogen seen in these pigs indicated endogenous protein breakdown with disturbance of elimination. Although large amounts of sodium were lost in the urine, the conc. of blood sodium did not change from standard values, and blood potassium concentration decreased. Some large negative sodium balances were accompanied neither by losses of body weight nor changes in blood sodium.

It was concluded that the level of blood sodium does not by itself appear to be adequate to assess sodium nutrition.

HAUPTMAN, B. (1958). Badania nad wpływem kobaltu w przypadkach charłactwa zwierząt. **[Cobalt treatment of emaciation in animals.]** —*Méd. vét., Varsovie* **14,** 418-420. [In Polish. Summaries in English and Russian.] **1502**

Two sets of experiments were carried out. (1) 30 sheep affected with liver fluke and foot rot were divided into 3 groups, 2 of which received mineral supplements in the form of cobalt chloride and cobalt chloride with copper sulphate while the 3rd group was left as control. (2) 30 emaciated sheep were similarly divided and given the same mineral supplements. After a month the average weight gains in both experiments were: (a) in the control groups 0·5–0·8 kg., (b) in the groups given cobalt chloride 3·1 to 3·5 kg. and (c) in the groups given cobalt chloride and copper sulphate 4·8–5 kg.

—M. GITTER.

MCCALL, J. T. (1958). **The interaction of copper and other dietary factors in animal metabolism.**—*Dissertation, Florida* pp. 108. [Abst. from abst. in *Diss. Abstr.* **18,** 1602. (1958).] **1503**

Experiments on rats indicated that a change in the protein content of the diet may alter absorption of copper in the diet, possibly by formation of copper–protein complexes in the intestine. Accumulation of radioactive Cu in the liver was 10–30 times greater than normal in rats given a diet containing 10% protein and 2,500 p.p.m. copper, but accumulation was normal in rats receiving 25% protein with the same conc. of copper.—R.M.

SHODEN, A. & STURGEON, P. (1958). **Iron storage. I. The influence of time on the redistribution of excess storage iron.**—*Amer. J. Path.* **34,** 1139-1147. [Authors' summary modified.] **1504**

In rabbits given 2,000 mg. of saccharated iron oxide i/v over a 6-week period, there was, during the course of 3 to 6 months, a shift of iron from the spleen and bone marrow to the liver. During this redistribution, the liver haemosiderin iron increased more than the total liver iron. Thus, there was a concurrent decrease in liver ferritin iron. These observations indicate that in states of iron overloading, the interval between administration and observation is an important factor in considerations of the ultimate distribution of iron.

NESENI, R. & PIATKOWSKI, B. (1958). Zur Frage der Parakeratose der Schweine. **[Parakeratosis in pigs.]** — *Mh. VetMed.* **13,** 461-464. **1505**

Feeding experiments in 60 pigs revealed that the higher the Ca content of the ration, the greater is the Zn requirement, and that continuous administration of small quantities of Zn is better than giving large doses for 3–4 weeks. The Ca : P ratio did not appear to be important.

It is concluded that the Ca:Zn ratio of a pig's diet should be 100–125:1; therefore 35–50 p.p.m. of Zn should be added to a diet with a normal Ca content of 0·65%.—M.G.G.

ALLCROFT, R. (1958). **Mineral deficiencies.** In "Control of diseases in cattle and sheep at pasture" pp. 79-92. Paris: The European Productivity Agency of the Organisation for European Economic Co-operation. **1506**

A discussion of work already published on copper deficiency in sheep and cattle in Gt. Britain, and P and Co deficiency of sheep and cattle in Ireland.—R.M.

SEEKLES, L. (1958). **Nutrition tetany.** In "Control of diseases in cattle and sheep at pasture" pp. 57-78. Paris: The European Productivity Agency of the Organisation for European Economic Co-operation. **1507**

S. preferred the term "nutrition tetany" to describe grass tetany or hypomagnesaemia of cows. He discussed the literature on hypomagnesaemia and commented on the occurrence of diarrhoea, with passage of undigested food, in a high proportion of chronic and acute cases in cattle. It was suggested that toxins resulting from intestinal disorders might indirectly influence the Mg content of the blood, but S. was unable to produce concrete evidence in support of this theory.—R.M.

MARSHAK, R. R. (1958). **Some metabolic derangements associated with magnesium metabolism in cattle.** — *J. Amer. vet. med. Ass.* **133,** 539-542. [Author's summary modified.] **1508**

A study of 8 adult dairy cows with tetany indicated that hypocalcaemia was the primary disturbance. The theory that low plasma magnesium causes tetany is questioned.

WIND, J. (1958). **Relationship between the mineral composition of pasture and grass tetany and other mineral disorders.** In "Control of diseases in cattle and sheep at pasture" pp. 93-123. Paris: The European Productivity Agency of the Organisation for European Economic Co-operation. **1509**

W. discussed recent British, Dutch and Norwegian work on this subject. Grass tetany in cows could be prevented by increasing the Ca and Mg. content of herbage or decreasing the potassium content. This might be achieved by restricting the use of liquid or farmyard manure and potassium or nitrogenous fertilizers. If these measures failed, administration of MgO in cattle cake, or the feeding of pulp or potato residues, was indicated.—R.M.

KASHIWA, H. K. & HUNGERFORD, G. F. (1958). **Blood leucocyte response in rats fed a magnesium deficient diet.**—*Proc. Soc. exp. Biol., N.Y.* **99,** 441-443. [Authors' summary modified.] **1510**

Rats fed a magnesium-deficient diet develop a leucocytosis during the hyperaemic phase of the deficiency syndrome. Mononuclear leucocytes and neutrophiles contribute to the leucocytosis but eosinophiles are elevated relatively more, being increased tenfold.

GIROUD, A. & MARTINET, M. (1958). Répercussions de l'hypervitaminose A chez l'embryon de lapin. **[Effect of excess vitamin A on rabbit embryos.]** — *C. R. Soc. Biol., Paris* **152,** 931-932. **1511**

Administration of 500,000 i.u. of the vitamin to rabbits between the 5th and the 14th day of pregnancy caused abortion and only occasional deformity in the embryos. Thus the response of rabbits to excess vitamin A differed from that of rats, in which deformities of embryos were common.—R.M.

MORGANTINI, F. (1958). Ipervitaminosi A e $D_2$ sperimentale nel cane. **[Experimental hypervitaminosis (A and D) in the dog.]**—*Ann. Fac. Med. vet. Pisa* **10,** 213-228. [Summaries in English, French and German.] **1512**

The effects of overdosing with vitamins A and D, singly or in combination, were studied in three young dogs, with special reference to osteodystrophy. Shock doses did not cause any bone changes though lesions in the kidneys, heart, blood vessels and lungs were observed. —T.E.G.R.

MOORE, T., SHARMAN, I. M. & WARD, R. J. (1958). **Cod-liver oil as a source of vitamin E.**—*Proc. Nutr. Soc.* **17,** No. 2 pp. xxiv-xxv of Abstracts. **1513**

Cod-liver oil was a good source of vitamin E (10·2 mg. alpha-tocopherol/100 g.) but the vitamin was antagonized by the high content of unsaturated fatty acids in the oil. The result of this antagonism was very different in different parts of the body. Thus cod-liver oil gave complete protection against brown discoloration of the uterus and degeneration of the testes in rats, but did not protect against brown discoloration of body fat, haemolysis by dialuric acid, or post-mortem autolysis in kidney.—R.M.

BIERI, J. G., BRIGGS, G. M. & POLLARD, C. J. (1958). **Acceleration of vitamin E deficiency by torula yeast. II. Effect of torula yeast ash and lipid.**—*Proc. Soc. exp. Biol., N.Y.* **99,** 262-265. [Authors' summary modified.] **1514**

When added to a purified basal diet low in vitamin E and selenium, the ash of torula yeast promoted exudative diathesis in chicks. This effect was not demonstrable with any of the minor elements, nor with any of the major components, of the ash. The lipid isolated from torula yeast also promoted exudates, as did Acintol $FA_2$ oil. A combination of lipid and ash from torula yeast produced an incidence of exudative diathesis similar to that produced by an equivalent amount of the intact yeast. A combination of Acintol FA-2 oil and a synthetic ash was just as effective. It is concluded that the anti-vitamin E property of torula yeast is due essentially to both its unsaturated fatty acid and mineral contents. The relatively high content of dienoic acid in the lipid of torula yeast was confirmed.

SANDRI, G. (1958). Contributo pratico alla terapia della "miodisgenesi" dei vitelli. **[Treatment of muscular dystrophy in calves.]** —*Progr. vet., Torino* **13,** 491-492 & 494. **1515**

Myopathy of unweaned calves is discussed and results of treatment of seven animals are presented in tabular form. Treatment consisted of a detoxicating agent (composed of honey, sodium adenosine–5–monophosphate and mesoinositol), inj. i/v, and vitamin B complex. Complete recovery ensued.—T.E.G.R.

SALUTINI, E. (1958). Corea neonatale nel gatto da ipovitaminosi $B_1$. **[Chorea in new-born kittens due to vitamin $B_1$ deficiency.]**—*Acta med. vet., Napoli* **4,** 261-265. [Summaries in English and French.] **1516**

A chorea-like condition in new-born kittens was successfully treated with vitamin $B_1$. The condition is ascribed to congenital hypovitaminosis.—T.E.G.R.

CAMPBELL, E. A. (1958). **The treatment and control of diabetes in the dog.**—*Aust. vet. J.* **34,** 222-224. **1517**

Of 12 cases studied only one was in a male and all except two of the bitches were aged, thus confirming previous reports. The use of "Clinistix" for the detection of diabetes and as a guide to therapy is advocated. Blood sugar determination is recommended as the best indication of the severity of the disease. Insulin should be given until urine sugar is reduced to 0·25% and the ketones have disappeared; continued therapy is based on urine analysis. During and after diabetic coma the dehydration and electrolyte loss deserve as much attention as the hyperglycaemia. Hypoglycaemia in the aged bitch resulted from too vigorous insulin therapy. If original blood sugar values are over 400 mg.% it is unwise initially to reduce them below 200 mg.%—L. N. LOOMIS.

WILKINSON, J. S. (1957/58). **Spontaneous diabetes in domestic animals. Parts I & II.**—*Vet. Rev. Annot.* **3,** 69-96 & **4,** 93-117. **1518**

A review of the symptoms, pathology, physiology and treatment of diabetes in dogs. There is also reference to diabetes in horse, cattle, sheep, pig and cat.—R.M.

ASH, R. W., PENNINGTON, R. J. & REID, R. S. (1959). **The effect of short-chain fatty acids on blood glucose in sheep.**—*Biochem. J.* **71,** No. 1. pp. 9P-10P of Proceedings. **1519**

From experiments in which butyrate labelled with radiocarbon was injected i/v into sheep, it was concluded that the rise in blood sugar produced by fatty acids was not due to gluconeogenesis from fatty acids.—R.M.

FORD, E. J. H. (1958). **Metabolic changes in cattle and sheep at parturition.**—*Vet. Rev. Annot.* **4,** 119-131. **1520**

A discussion of changes in blood composition, liver metabolism and hormone activity during late pregnancy and parturition. F. suggested that closer investigation of these events in normal cows would throw light on diseases occurring at parturition.—R.M.

ALMGREN, A. (1958). Obduktionsfynd på nödslaktade paresfall vid slakthuset i Linköping under tiden 1/1–1/6 1958. **[Post-mortem findings in cows with paresis slaughtered in Linköping between January and June 1958.]** — *Medlemsbl. Sverig. VetFörb.* **10,** 360 & 363. [In Swedish.] **1521**

Thirty-eight cows slaughtered because of failure to respond to treatment for puerperal paresis were examined P.M. They fell into two main groups: those with lesions of the liver, kidneys and adrenals characteristic of acetonaemia (9 cases), and those with luxation of the iliosacral joint (27 cases, some of which had also liver degeneration). One cow had lymphadenosis of the spinal canal; 3 had traumatic injuries due to foreign bodies; other findings included necrosis of the muscles of the pelvis, septic mastitis with retained placenta; muscle degeneration. In 4 there were no demonstrable lesions.—F.E.W.

RICHARDS, C. R. (1958). **Some observations on the use of sodium propionate for the prevention of ketosis in dairy cattle.**—*J. Dairy Sci.* **41,** 1580-1585. [Author's summary modified.] **1522**

A herd of cows with a previous high

incidence of ketosis was divided into control and treatment groups. Cows which calved a second time during the course of the experiment were then placed in the opposite group; thus 11 of the cows were included in both groups. The treatment group received one eighth of a pound of sodium propionate twice daily by drench for approx. 6 weeks post-partum. The incidence of ketosis, low in both groups, was just as high in the treated as in the control. The treated group tended to be lower in blood ketones and higher in blood glucose than the control group; however, individual variation was great. Milk production was higher in the treated group.

## DISEASES, GENERAL

ANON. (1958). **FAO/OIE Animal Health Year Book, 1957.** pp. 38 + 38 tables. Rome: Food and Agriculture Organization. Paris: Office International des Epizooties. [In English, French and Spanish.] **1523**

This is an expanded and revised edition of the World livestock disease report, 1956, [*V.B.* **29,** 202]. It contains three times as many tables showing the incidence of specific diseases in each country. Again there are no contributions from the U.S.S.R., China and East Germany, but this time there is limited information from the U.S.A. Use of the tables is facilitated by a key to the numerical codes employed, which folds out from the back cover.

In addition to the tables there is a preface in three languages which describes the World reference laboratory for foot and mouth disease, with a list of types of F. & M. disease virus found in Africa, Asia and the Near East, and which gives notes on the present position of vibriosis, trichomoniasis, brucellosis in goats and sheep, and the control of haemorrhagic septicaemia and rinderpest.

It is a pity that the tables had to be folded, but it is difficult to see how this could be avoided without either doubling the number of tables or producing a book of large size. The paper binding will not stand up to much handling, and copies required for constant reference will need to be bound properly.—R.M.

ENDREJAT, E. (1958). **United Nations. Report to the Government of India on the control of animal disease in Assam.** pp. 41. Rome: Food and Agriculture Organization of the United Nations. [FAO Report No. 796.] **1524**

The report is based on a two-year study of conditions and contains useful information on diseases of livestock especially the parasitic diseases. Advice on improvement of the veterinary school on disease control and development of veterinary services is contained in a list of recommendations. Bovine contagious pleuropneumonia appears to be an important disease in Assam.

HEMPY, J. H. (1958). **Animal disease and biological warfare.** — *Ann. N.Y. Acad. Sci.* **70,** 712-716. **1525**

Writing from the Office of the Surgeon-General, United States Air Force, Washington, the author discussed animal disease in relation to biological warfare. He gave instances from ancient history, from Napoleon's wars and from more recent ones of the ravages of disease in armies and their interference with military operations. He referred briefly to vulnerability in populations exposed to particular biological hazards *via* specially vulnerable paths of entry to the body and to methods of defence against such hazards.—W.A.P.

DRECHSLER, O. (1958). Neue Gedanken über die Ätiologie der Längsachsendrehung des grossen Colon beim Pferd. **[New views on the aetiology of torsion of the large colon in the horse.]**—*Dtsch. tierärztl. Wschr.* **65,** 298-303. [Summary in English.] **1526**

According to D., torsion occurred only during intestinal atony, the turning force being provided by peristalsis. Administration of purgatives to horses with atony could result in torsion of the large colon.—R.M.

SCHUMACHER, H. H. & SCHINDLER, R. (1958). Geographische Pathologie von Rinderkrankheiten in Nord-Peru. **[Geographical pathology of diseases of cattle in North Peru.]**—*Zbl. allg. Path. path. Anat.* **98,** 202-203. **1527**

An area of 500 sq. km. on the western slopes of the Andes 1,000-3,000 m. above sea level was studied. The occurrence of tick infestation, piroplasmosis, anaplasmosis, poisonous plants and altitude sickness was noted.—R.M.

HIDIROGLOU, M. & PREVOST, R. (1958). L'oedème des bovins en Guyane française. **[Oedema of cattle in French Guiana.]**—*Rec. Méd. vét.* **134,** 221-228. [Summary in English.] **1528**

This is a relatively common disease, in French Guiana, characterized by submaxillary

oedema which may extend to the dewlap, brisket and chest. Its course varies from a few days to 2 or 3 months, both young and adult cattle being affected. In the acute form the symptoms are listlessness, diarrhoea, oedema and marked enlargement of the prescapular lymph nodes; anaemia may also be present. In the chronic form there is also progressive emaciation although the appetite is good. This is followed by a foetid diarrhoea which is resistant to treatment. The oedema is cold, painless and soft, gradually becoming harder. The condition is afebrile and sometimes clears up spontaneously, reappearing some weeks later and terminating in death. P.M. findings include infiltration of the subcutaneous connective tissue with a clear, slightly blood-tinged liquid, ascites, hypertrophy or atrophy of the liver accompanied by cirrhosis, softening and dilatation of the heart and, occasionally, hydrothorax. Eight animals treated with metaiodine [an iodinated protein preparation] recovered; other lines of treatment were unsuccessful. The aetiology is obscure. A similar condition occurs in dogs.—T.E.G.R.

LEONE, G. (1957). Sulla glomerulonefrite emorragica di probabile natura allergica nel bovino. **[Haemorrhagic glomerulonephritis in a cow.]** — *Ann. Fac. Med. vet. Torino* **7,** 165-173. [Summaries in English, French and German.] **1529**

Haemorrhagic glomerulo-nephritis was observed P.M. in a cow with foreign body involving the reticulum and spleen. The kidney lesions are ascribed to allergic phenomena set up by the septic focus.—T.E.G.R.

LAWRIE, R. A. (1958). **Physiological stress in relation to dark-cutting beef.** — *J. Sci. Fd Agric.* **9,** 721-727. [Author's conclusion modified.] **1530**

Irrespective of the mechanism of reaction to stress, the reason for varying sensitivity in steers remains unknown. Whereas some of the circumstances predisposing to muscle degeneration disease in pigs can be explained on the basis of heredity, no evidence has so far been adduced in the case of dark-cutting beef. It is nevertheless suggestive that, according to Kidwell (1952), there was at one time an apparent genetical link between dark-cutting character and muscular hypertrophy in the original (then relatively unselected) European stock. This would accord with the inverse relationship between the production of growth-regulating and adrenocorticotrophic hormones by the pituitary. It thus seems reasonable to conclude that prevention of dark-cutting beef and of other manifestations of adaptive disease in livestock will depend on progress in genetics and neuro-endocrinology.

ZERZAWY, E. O. M. (1958). Papierelektrophoretische Untersuchungen des Blutserums klinisch gesunder Kühe und deren neugeborener Kälber. **[Paper electrophoretic studies of blood serum of clinically healthy cows and their new-born calves.]** — *Inaug. Diss. Munich.* pp. 19. **1531**

Blood samples from 20 calves during the first two weeks of life were examined by paper electrophoresis. Values in samples taken at birth before ingestion of colostrum were: protein 42·8–61·4%, α-globulin 22·8–37·2%, β-globulin 9·5–22·2%, and γ-globulin 0–14·2%; composition of those taken 3–4 days after birth: protein 41·1–55·6%, α-globulin 12·1–30·2%, β-globulin 12·0–20·7%, and γ-globulin 3·5–20·0%; and of those taken 13–14 days after birth: protein 46·1–61·2%, α-globulin 12–19·3%, β-globulin 16·5–23·5%, and γ-globulin 3·9–18·2%. Values in dams' samples taken immediately after parturition were: protein 40·3–63·8%, α-globulin 9·6–17·5%, β-globulin 8·7–22·2%, and γ-globulin 12·9–40·8%. There was no apparent relationship between γ-globulin values in dams and their offspring.—E.G.

HOPWOOD, R. T. & TIBOLLA, B. J. (1958). **The effect of adrenocorticotrophic hormone on the circulating eosinophil level—a possible screening test for adrenal gland function in the cow.** —*Amer. J. vet. Res.* **19,** 833-835. [Authors' summary modified.] **1532**

In normal cows injected i/m with 400 units adrenocorticotrophic hormone (ACTH), circulating eosinophiles decreased by 66 to 93%, the maximum decrease occurring about 10 hours after injection. It is suggested that these findings might be of value in developing a screening test for adrenal cortical function in cows.

NOBEL, T. A. (1958). **[Pulmonary adenomatosis (Jagsiekte) in sheep with special reference to its occurrence in Israel.]** — *Refuah vet.* **15,** In Hebrew: pp. 67-73. In English: p. 101. **1533**

Pattison provisionally diagnosed jaagsiekte in Israel in 1944 [*V.B.* **16,** 2300]. The diagnosis has since been confirmed and 26 cases were recorded between 1954 and 1957.—R.M.

ROE, C. K. & ALEXANDER, T. J. L. (1958). **A disease of nursing pigs previously unreported in Ontario.**—*Canad. J. comp. Med.* **22,** 305-307. **1534**

Late in 1957 a disease was observed in baby

pigs in Ontario in which a high mortality was commonly associated with vomition, anorexia, constipation and a severe progressive emaciation. Since then infection appears to have reached epidemic proportions. The disease has been reproduced experimentally but the exact nature of the causative agent is as yet undetermined. In some respects the condition bears a marked resemblance to transmissible gastroenteritis (TGE), but there are some marked differences. On the available evidence it is impossible to conclude whether the disease in question is indeed TGE or a distinct entity. For this reason studies are being carried out extensively.
—R. V. L. WALKER.

AUSTVOLL, J. (1958). **Gut edema in pigs. Hydrocortisone and combined hydrocortisone and sulfonamide for treatment.** — *Vet. Med.* **53,** 349-350. **1535**

17 pigs with oedema disease were treated as soon as possible after the appearance of symptoms with 50–100 mg. hydrocortisone injected s/c or i/m. 5 of the pigs also received a combination of sulphadimidine and sulphamerazine i/p. 11 pigs recovered.—R.M.

PUNTONI, P. (1958). Contributo allo studio delle osteodistrofie del cane. (Di un caso di osteodistrofia ipertrofica identificabile con la malattia di Barlow secondo Collet.) **[Osteodystrophy in the dog.]**—*Ann. Fac. Med. vet. Pisa* **10,** 144-158. [Summaries in English and French.] **1536**

An account of hypertrophic osteodystrophy in a dog aged 4 months is given. The limb bones were involved, especially the medio-distal segments, radius, ulna and tibia. Calcium–vitamin therapy elicited no response. Gross and microscopic changes in the affected bones are described.—T.E.G.R.

PUNTONI, P. (1958). Su due casi di osteoartropatia ipertrofizzante pneumica osservati nel cane in esito a bronco polmonite da corpo estraneo. **[Pulmonary hypertrophic osteoarthropathy in the dog.]** — *Ann. Fac. Med. vet. Pisa* **10,** 168-191. [Summaries in French and German.] **1537**

Literature on hypertrophic osteoarthropathy is reviewed and an account is given of the condition, associated with foreign body bronchopneumonia, in two dogs. In one a false positive tuberculin reaction led to a diagnosis of TB. The dog was accordingly treated with antibiotics, isoniazid and vitamins. There was appreciable regression in the bone lesions and some improvement in the pneumonia. In each case excision of the affected pulmonary lobe was attempted. In the first, death occurred from accidental haemorrhage and in the second completion of the operation was prevented by extensive adhesions. In each case P.M. examination revealed a barley awn as the cause of the bronchopneumonia.
—T.E.G.R.

MARTIN, J. (1958). Beitrag zum Problem der Wirbelsäulenerkrankungen des Hundes. **[Diseases of the vertebral column in dogs.]**—*Mh. VetMed.* **13,** 237-241. **1538**

Six cases of vertebral ankylosis (5 of them in males) were described. Calcification commenced in the ligaments and was most severe in the region of the central longitudinal ligament on the bodies of the last thoracic and lumbar vertebrae.—R.M.

LAWSON, D. D. (1958). **Intervertebral disc protrusion in the dog.**—*Proc. R. Soc. Med.* **51,** 569-571. **1539**

Dogs with protrusion of cervical disks exhibit pain and apprehension, rigidity of the neck and spasm of the cervical muscles. Brachial paralysis occurs sometimes. Dogs with thoracolumbar protrusion show a variety of symptoms, which may be divided into 5 groups: (1) pain, (2) pain and paresis, (3) paraplegia, (4) absolute paralysis, and (5) acute ascending paralysis.—M.G.G.

SMITH, R. N. (1958). **Anatomical factors influencing disc protrusion in dog and man.** — *Proc. R. Soc. Med.* **51,** 571-573. **1540**

Intervertebral disks begin to degenerate in the third to fourth decade in man, at 6-7 years in most dogs, and at 6 months in the chondrodystrophoid group of dogs. The majority of disk protrusions in dogs are between the eleventh thoracic and fifth lumbar vertebrae. Anatomical factors which probably influence disk protrusion are the thinness of the dorsal part of the annulus fibrosus, and the shape and the thickness of the disk.—M.G.G.

DÄMMRICH, K. (1958). Pathologisch-anatomische und -histologische Untersuchungen an Knochen, Nieren und Epithelkörperchen von Hunden mit Nierenerkrankungen. **[Pathological and histological studies on bones, kidneys and parathyroids of dogs with renal disorders.]**—*Zbl. VetMed.* **5,** 742-768. [Summaries in English, French and Spanish. English summary modified.] **1541**

The bones and kidneys were examined in 39 dogs with nephritis. Changes were found in the ribs and head bones, and less often in the scapula. The ribs could be bent more easily and the compacta was more porous. The head bones

to be affected first were the jaws, followed by the nasal, frontal and temporal bones. These showed porosity, increasing rarefaction, and lower specific gravity. Bending of the bones ("rubber jaw") occurred in 7 cases. Metastatic calcification was found in the kidneys, trachea, epiglottis, endocardium, larynx and aorta in 16 of the 39 dogs. The kidneys showed macroscopically interstitial nephritis, with or without contraction. Of 24 kidneys examined histologically, 16 had calcium deposits in glomeruli, Bowman's capsule, the capsular space, tubules and their basement membrane, and in the interstitial tissue. In all cases with this osteo-renal syndrome and in cases with nephritis without bone changes, the parathyroids were enlarged 1½ to 10 times. Histologically the enlarged glands showed swelling of the nucleus and cytoplasm of the proliferated chief cells and changes in cellular arrangement. The enlargement is interpreted as hyperplasia and hypertrophy. It was secondary to the renal changes.

CARNAGHAN, R. B. A. & HANSON, B. S. (1958). **Rupture of the gastrocnemius tendon in fowls.** —*Brit. vet. J.* **114,** 360-366. [Authors' summary modified.] **1542**

Four fowls which had recovered from rupture of the gastrocnemius tendon were used for breeding. Fifteen (21%) of the 70 offspring developed tendon rupture. It is suggested that the condition is inherited and that the time of rupture is influenced by the activity of the gonads.

BIERER, B. W. (1958). **Keratoconjunctivitis in turkeys. II. The relationship of vitamin A, infectious agents and environmental factors to the disease.**—*Vet. Med.* **53,** 477-483. [For part I, see *V.B.* **26,** 3934.] **1543**

Six outbreaks were studied in 1957/58. The condition did not appear to be simple vitamin A deficiency because it occurred in a flock receiving additional vitamin A in the food. No bacteria or fungi were consistently isolated from affected eyes, and none was capable of producing more than secondary infection. The more severe outbreaks occurred in winter.—R.M.

FRASER, A. S. & HALL, R. J. (1958). **Effects of X-irradiation on foetal development.**—*Aust. J. biol. Sci.* **11,** 425-433. [Authors' summary modified.] **1544**

Pregnant mice were irradiated at doses of 250 r from 8–11 days and 300 and 350 r from 8–14 days of pregnancy. Litter size was markedly reduced and the number of fertilized females which produced no young at term, increased. Changes in the pattern of the facial vibrissae in the new-born young of mice given 300 and 350 r were studied and discussed. Some of the young had naked patches of skin with scab formation. Some had a tendency to fits.

MARSTON, H. R. (1958). **The accumulation of radioactive iodine in the thyroids of grazing animals subsequent to atomic weapon tests.**—*Aust. J. biol. Sci.* **11,** 382-398. [Author's summary modified.] **1545**

Radioactivity due to $^{131}I$ was found in thyroid glands collected from sheep and cattle grazing in various parts of Australia subsequent to atomic weapon tests made in 1956 at Monte Bello and at Maralinga. Thyroids from cattle contained up to 830 m$\mu$c $^{131}I$ (37 m$\mu$c $^{131}I$/g. of tissue) and from sheep, up to 144 m$\mu$c $^{131}I$ (70 m$\mu$c $^{131}I$/g. of tissue). The uneven degree of contamination of pastures was emphasized by the fact that some of the highest concentrations of $^{131}I$ were in thyroids from flocks and herds 1,500 to 2,000 miles distant from the site of the explosions. As the tests proceeded, fluctuations in the $^{131}I$ content of the thyroids of grazing stock indicated that many areas received repeated dressings of radioactive debris.

Contamination of Adelaide with fall-out from the third Maralinga test provided an opportunity to establish unequivocally that extremely little of the $^{131}I$ that became concentrated in the thyroids found its way to them *via* the lungs; and the occasion also made possible a study of the rates of rise and fall of $^{131}I$ in the thyroids of grazing animals in relation to the degree of contamination of the pastures.

The value of the $^{131}I$ in the thyroids as a measure of the hazards imposed by fall-out after atomic weapon tests is considered in the light of the findings.

The speed with which grazing cows gather radioactive debris from their pastures is discussed in relation to the hazard entailed in the passage of bone-seeking radioactive constituents of fall-out *via* milk to human populations.

BUSTAD, L. K., WARNER, D. E. & KORNBERG, H. A. (1958). **Effect of stable iodine on uptake of radioiodine in sheep.** — *Amer. J. vet. Res.* **19,** 893-894. [Authors' summary.] **1546**

Supplying iodized salt (in amounts approximating those used by many farmers) to sheep on ration low in stable iodine reduced thyroid uptake of a single tracer dose of $I^{131}$ by over 30%. Inorganic iodine (KI) administered

daily at levels of 2·5 mg. to sheep, maintained on 5·0 and 0·15 μc. of $I^{131}$ daily, reduced thyroid uptake to less than 50% of that of the controls.

SPURRELL, F. A. & DAY, S. B. (1958). **Necrotizing phalangeal arthritis in hoofed animals, with radiographs of extinct Irish elk.**—*J. Amer. vet. med. Ass.* **132,** 513-520. **1547**

The authors reported arthritis of the phalanges in a horse, a ram and two cattle and discussed the role of radiography in prognosis. Arthritis was also present in fossil bones from *Cervus giganteus* found in Ireland.—R.M.

## POISONS AND POISONING

AGRESTI, A., BIONDI, S. & CATELLANI, G. (1958). Di un raro caso di saturnismo del cane sovrapponibile a quello professionale dell'uomo. **[Lead poisoning in a dog.]** — *Acta med. vet., Napoli* **4,** 169-192. [Summaries in English, French, German and Spanish.] **1548**

An account of chronic lead poisoning in a dog which had been a watch dog in a printer's workshop for seven years is given. The findings were in general similar to those of the condition in man.—T.E.G.R.

WAGNER, M. J., STOOKEY, G. K. & MUHLER, J. C. (1958). **Deposition of fluoride in soft tissues following skeletal saturation.** — *Proc. Soc. exp. Biol., N.Y.* **99,** 102-105. [Authors' summary modified.] **1549**

In young rats given 1 mg. NaF daily for 90 days, no increase was demonstrable in fluoride content or concentration of heart, liver, or kidney, even with approaching fluoride saturation of the skeleton. Fluoride content of the carcass, femur, and sternum increased markedly with fluoride ingestion but rate of retention decreased throughout the experiment, particularly after attainment of skeletal maturity. At this level of intake (1 mg. per rat per day) NaF was toxic, as evidenced by the decreased weight gains in the fluoride group as compared with the controls.

SUTTER, M. D., RAWSON, D. C., MCKEOWN, J. A. & HASKELL, A. R. (1958). **Chronic copper toxicosis in sheep.** — *Amer. J. vet. Res.* **19,** 890-892. [Authors' summary modified.] **1550**

The clinical signs, gross changes, histology of the lesions, and blood and liver copper levels following daily administration of 250 mg. copper to sheep are presented. It was concluded that the blood copper levels in sheep may be used for a definitive diagnosis of copper poisoning and that the commonly associated haemolytic syndrome is not an essential criterion for diagnosis.

MILLER, A. C. (1958). **Injury of dairy cattle by sodium arsenite spray.**—*J. econ. Ent.* **51,** 539-540. **1551**

Severe skin injury, characterized by necrosis and sloughing, was caused by the accidental use of a herbicide, containing 60% sodium arsenite by weight, for spraying 25 dairy cows. Milk production fell by 40%. Two cows had to be slaughtered and three more were culled. The injury was reproduced in a calf experimentally. —M.G.G.

NITZSCHKE, E. (1958). Betrachtungen über Futtervergiftungen in Beziehung zur Saatgutbeizung mit quecksilberhaltigen Präparaten. **[Poisoning of animals by mercurial seed dressings.]**—*Mh. Tierheilk.* **10,** 372-380. **1552**

The literature on accidental and experimental poisoning of domestic animals and birds with seed and crop dressings containing mercury is reviewed. Cattle are highly susceptible, but fowls and pigs are more resistant. The symptoms are varied, and are influenced by the age and individual resistance of the animal and the nature of the mercurial compound.—M.G.G.

WAGENER, K. & REUSS, U. (1958). **Poisons on the pasture originating from industry and pest control. Hyperkeratosis in cattle.** In "Control of diseases in cattle and sheep at pasture" pp. 143-155. Paris: The European Productivity Agency of the Organization for European Economic Co-operation. **1553**

A discussion of the literature on hyperkeratosis caused by chlorinated naphthalene.—R.M.

AMBROSE, A. M., COX, A. J., JR. & DEEDS, F. (1958). **Toxicological studies on sesamol.** —*J. agric. Food Chem.* **6,** 600-604. **1554**

Sesamol, the methylene ether of oxyhydroquinone, is a constituent of sesame oil, and has antioxidant properties. Aqueous solutions caused swelling and inflammation when applied to the coniunctival sacs of rabbits, but application of a 5% aq. soln. to shaved skin by means of a soaked pad held in position for 4 days had

no effect. Skin sensitization could not be induced in g. pigs. Fed to 134 rats as 0·016%–1% of the diet for 400–634 days, sesamol had no effect on blood picture, growth or body weight. P.M. examination, however, revealed 20 proliferative lesions, 2 of them malignant. Control rats had no such lesions.—M.G.G.

FELDMAN, G. L., FERGUSON, T. M., RIGDON, R. H., REID, B. L., CROSS, M. S. & COUCH, J. R. (1958). **Effect of dinitrophenol on lens of chick embryo.** — *Proc. Soc. exp. Biol., N.Y.* **98,** 646-648. **1555**

Cataract was observed in chick embryos and in chicks hatching from eggs that were inoculated with 200–500 μg. of dinitrophenol on the 8th day of incubation. Injection of 1–25 μg. before incubation or 25–200 μg. on the 5th day of incubation did not cause changes in the lens. Injection of 750 μg. on the 15th day of incubation caused opacity which was evident 20 hours later. The opacity regressed, however, since the eyes of chicks hatching in this group were normal.—M.G.G.

VASIN, A. V. (1958). **[Mycotoxicoses of animals and their clinical and laboratory diagnosis.]** — *Veterinariya, Moscow* **35,** No. 6 pp. 64-66. [In Russian.] **1556**

It was not possible to differentiate poisoning with mould fungi from infectious diseases and poisoning with plants or minerals by clinical and pathological findings alone. An example was given of symptoms like those of botulism, shown by 10 horses poisoned with mouldy silage. Diagnosis depended on the isolation of toxin from suspected foodstuffs. This was done by extracting 200–250 g. of ground feed in the cold for 2–3 days with the following mixture: 200 ml. ether, 100 ml. ethyl alcohol and 1 ml. conc. HCl. The extract obtained could be examined chemically or biologically by inoculation of mice. The author preferred the biological method.

—E. L. URCH.

SWAHN, GRANT, THAFVELIN, HELLBERG & FREDRIKSSON. (1958). Försök på Ulfhäll med skördeskadad spannmål till växande svin. **[Feeding tests on growing pigs with harvest-damaged grain.]** — *Medlemsbl. Sverig. Vet-Förb.* **10,** 420 & 422. [In Swedish.] **1557**

Feeding tests on pigs were carried out, using apparently normal corn (controls) and two samples of badly damaged corn from two farms where pigs had died with liver lesions and muscular degeneration. One sample, bacteriologically and chemically of extremely low quality, was badly discoloured and smelt musty. Each sample was fed to two groups of 14 pigs, one group adequately supplemented with a concentrate, the other inadequately with skim milk (1 litre per pig per day). Certain of the test pigs were given a vitamin E supplement once a week. (Adequate vitamins A and D had been provided on both farms.) In the group receiving concentrate with damaged corn no pigs died; rate of growth and feed utilization were poorer than normal, as was the pork quality. In the groups given skim milk, 5 sudden deaths occurred with liver lesions and muscular degeneration; the only visible symptoms were reduced appetite and poor growth; feed utilization was poor, and pork quality worse than in the concentrate group. Vitamin E, as given, had little influence; none of these pigs died, but a few had liver lesions.

—F.E.W.

HILL, K. R. & MARTIN, H. M. (1958). **Hepatic veno-occlusive disease and megalocytosis in *Senecio* poisoning of horses. (Further investigations of "the walking disease" of Northwestern Nebraska.)**—*Brit. vet. J.* **114,** 345-350. [Authors' summary modified.] **1558**

In 1929, Van Es *et al.* reproduced "the walking disease" of horses and cattle in northwestern Nebraska by feeding horses with *Senecio riddellii*. Re-examination of specimens of the livers from these experiments revealed veno-occlusive disease and megalocytosis of the liver. The disease appears to be similar to other diseases in man, cattle, horses and sheep which have a world-wide distribution, and are probably caused by the ingestion of the pyrrolizidine group of alkaloids.

DYBING, O. & HJELLE, A. (1958). Den toksiske virkning av dikesvineblom, Senecio aquaticus. **[Toxic action of *Senecio aquaticus*.]**— *Nord. VetMed.* **10,** 719-729. [In Norwegian. Summaries in English and German. English summary modified.] **1559**

This plant is very common in a district of western Norway. Cattle and horses were poisoned by hay containing it. The symptoms resemble those of poisoning by other species of *Senecio*: diarrhoea, unthriftiness, and liver cirrhosis. Rats given *S. aquaticus* as 5% of the food died after 5-6 weeks with necrosis in the centre of the liver lobules. The cholinesterase activity was reduced, being more pronounced in erythrocytes than in plasma. Calves fed 100 g. of *S. aquaticus* daily died in 5-6 weeks. Diarrhoea and nervous symptoms occurred, and the livers showed fatty degeneration and early necrosis.

SCHUMACHER, E. (1958). Zur Frage des Aufschlusses von Tabakblättern im Pansen des Rindes. I. Mitteilung: Versuche mit getrockneten Tabakblättern. **[Tobacco poisoning in cattle. I. Experiments with dried tobacco leaves.]**—*Wien. tierärztl. Mschr.* **45,** 418-426. [Summaries in English, French and Italian.] **1560**

Rumen juice released 73% of the nicotine in dried, fermented tobacco leaves within 15 min. It did not inactivate the nicotine. Rumen juice did not affect the adsorption of nicotine by charcoal.—M.G.G.

MILLARD, A. H. & ORR, W. (1958). **Observations on the toxicity of *Sarcolobus globosus*, Wall.** — *J. Malay. vet. med. Ass.* **2,** 24-30. **1561**

This plant is an Asian climber of the family Asclepiadaceae. There have been previous reports of toxicity of leaves, seeds and latex. The authors prepared extracts of the seeds and found that 200 g. powdered seed, and a fraction soluble in chloroform and alcohol, were lethal for goats. The toxic principle appeared to be a resin.

—R.M.

AHMED, M. K., CASIDA, J. E. & NICHOLS, R. E. (1958). **Bovine metabolism of organophosphorus insecticides: significance of rumen fluid with particular reference to parathion.**—*J. agric. Food Chem.* **6,** 740-746. [Authors' summary modified.] **1562**

Bovine rumen fluid hydrolysed many organophosphate insecticides. Reduction reactions were important, but oxidation reactions were of little significance. As rumen juice hydrolyses phosphorothioates much faster than phosphates, the *p*-nitrophenyl phosphates were recovered largely as *p*-amino derivatives, and only to a small extent as phosphorothioate analogues. Parathion, paraoxon, amino parathion, and amino paraoxon were demonstrated in blood, and small amounts in milk. Parathion was excreted as amino parathion, diethyl phosphoric acid and phosphorothioic acids.

LOULOUDES, S. J. (1958). **The syntheses of $P^{32}$ labeled Trolene, its absorption, distribution, and excretion by the cockroach, *Leucophea maderae* (F.) and white mouse, *Mus musculus*.**—*Dissertation, Kansas St. Coll.* pp. 87. [Abst. from abst. in *Diss. Abstr.* **18,** 1601-1602. (1958).] **1563**

Labelled Dow ET-57 ("Trolene") left the stomach of mice rapidly: after 12 hours only 7·9% of the dose remained in the stomach. Maximum concentration in the blood of mice was obtained 6 hours after oral administration.

—R.M.

*See also abstr.* **1599** (sodium fluoracetate for rabbit control); **1641** (report, Rhodesia & Nyasaland).

## PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

SCHMID, D. O. (1958). Über Bluttransfusionszwischenfälle beim Rind. **[Blood transfusion accidents in cattle.]**—*Mh. Tierheilk.* **10,** 328-334. **1564**

In over 500 blood transfusions in cattle there were 18 cases of shock, 2 of them fatal. The 2 cows that died had been given 25 or 70 ml. of blood, their first blood transfusion. Most cases were in high yielding cows or in cows that had just been fed. Good prophylactics are noradrenaline and a mixture of adrenaline and ephedrine.—M.G.G.

FLINT, J. C. & JENSEN, R. (1958). **The effect of chlortetracycline, fed continuously during fattening, on the incidence of liver abscesses in beef cattle.**—*Amer. J. vet. Res.* **19,** 830-832. [Authors' summary modified.] **1565**

In each of 3 experiments, using 1,895 cattle, in which chlortetracycline (70 or 75 mg. per animal per day) was fed throughout the fattening period, the test cattle developed significantly fewer liver abscesses than the controls.

COLGLAZIER, M. L., WILKENS, E. H. & ENZIE, F. D. (1958). **Influence of carob flour on absorption and elimination of phenothiazine.**—*Vet. Med.* **53,** 416-420. [Summary modified.] **1566**

Efforts to prevent absorption of phenothiazine and subsequent discoloration of milk from treated cows and goats has been the subject of considerable investigation. Using goats, the present authors failed to confirm earlier reports that a powder made from a tree native to the Near East (carob tree), when added to phenothiazine, prevented absorption of the anthelmintic from the digestive tract.

RICHARDSON, T. & TODD, A. C. (1958). **Elimination of phenothiazine by lactating dairy cows.**—*Amer. J. vet. Res.* **19,** 610-619. **1567**

Five cows were each given 100 g. of phenothiazine in boluses and 2 were given 100 g. of micronized phenothiazine in capsules. Unchanged phenothiazine was eliminated in the faeces, a phenothiazone ethereal sulphate in the urine, and a phenothiazone derivative in the milk. Elimination in the faeces lasted about 75 hours, in the urine 112–132 hours, and in the milk 71–87 hours. Cows given 100 g. phenothiazine in boluses excreted 81·5% :– 62·4 g. in the faeces, 19 g. in the urine and 0·075 g. in the milk. Cows given the micronized phenothiazine excreted 77·3% :–22·7 g. in the faeces, 54·3 g. in the urine, and 0·288 g. in the milk. Mixed milk from 8 cows given 2 g. of phenothiazine daily was not positive, indicating less than 2 p.p.m.—M.G.G.

HIBBS, C. M. (1958). **Use of chlorpromazine in swine.**—*Vet. Med.* **53,** 571-572. **1568**

Chlorpromazine was used to quieten sows which became "frenzied" at parturition. Doses ranging from 75 to 250 mg. were given, the larger doses s/c or i/m and the smaller doses i/v. In some sows the drug appeared to promote lactation. It did not appear to affect farrowing, appetite or thirst.—R.M.

LARSEN, L. H. (1958). **Recent developments in anaesthetics and muscular relaxants.** —*N. Z. vet. J.* **6,** 61-75. **1569**

A critical review of recent development in the human and veterinary fields.—R.M.

NOZDRACHEV, A. D. (1958). **[Procaine blockade of the pelvic organs in cows.]**—*Veterinariya, Moscow* **35,** No. 12 pp. 54-55. [In Russian.] **1570**

The pelvic organs were anaesthetized by introducing a large volume (250–500 ml.) of 0·5% procaine soln. into retroperitoneal connective tissue by means of a needle inserted at the level of the 3rd coccygeal vertebra, 5–8 cm. from the midline at an angle of 55° to the vertical, and to a depth of 4–8 cm. (depending on size of cow). The method was recommended for dystokia because contractions of the uterus ceased for about 2 hours, from about 15 min. after injection. —R.M.

BOCHKAREV, P. M. (1958). **[Use of barbamil (amylobarbitone) for anaesthesia of cattle.]** —*Veterinariya, Moscow* **35,** No. 12 p. 54. [In Russian.] **1571**

The dose of amylobarbitone, injected s/c or i/m as a 5–10% aqueous soln., was 6–8 mg./kg. body wt. Narcosis commenced 12–15 min. after s/c inj. It was suitable for use in dystokia, as contractions of the uterus ceased 15–20 min. after inj. If the first dose was insufficient, a half dose was given 20–25 min. after the first.—R.M.

ANON. (1958). **Failure of detergents to disinfect.** —*Lancet* August 9th, 306. **1572**

Septicaemia due to *Pseudomonas pyocyanea,* which is fairly resistant to quaternary ammonium compounds, has developed in patients in hospitals where 0·1% benzalkonium chloride is used as a disinfectant. It is recommended that swabs should be sterilized in a pressure-steam sterilizer; complex apparatus, with ethylene-oxide gas; and human skin, with 2% iodine in 70% spirit.—M.G.G.

*See also absts.* **1275-1276** (penicillin in mastitis); **1280** (effect of antibiotics on avian faecal streptococci); **1304** (antibiotics in rabbit pasteurellosis); **1327** ("pecudin" in brucellosis); **1360** (stilbamidine and hydroxystilbamidine in canine blastomycosis); **1361** (griseofulvin in ringworm); **1362** (formaldehyde against ringworm in calves); **1365** (antimycotic effect of spermine); **1372** (prophylaxis against trypanosomiasis in zebu); **1373** (metamidium); **1374** (leishmanicides); **1376** (coccidiosis in geese); **1382** (bovine piroplasmosis and anaplasmosis); **1409** (antimony in animal papillomatosis); **1440, 1442-1446, 1448-1450 & 1596** (insecticides); **1453, 1463, 1465-1472 & 1473** (anthelmintics); **1535** (porcine oedema disease); **1607** (levels of antibiotics in bull semen following i/m injection).

## PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

JOHNSON, H. D., CHU SHAN CHENG & RAGSDALE, A. C. (1958). **Effects of clipping and spraying on various homœothermic responses of rabbits at an elevated environmental temperature.**—*Nature, Lond.* **181,** 842-843. **1573**

The physiological and physical responses of clipped and normal rabbits to spraying with water at room temp. were quite different. Wet fur protected the animal from extremes in respiration rate after spraying at an environmental temp. of 103°F.—R.M.

ANDREWS, F. N. & FRANSEN, J. M. (1958). **Effects of endocrine therapy on the growth of dwarf beef cattle.**—*Amer. J. vet. Res.* **19,** 822-824. [Authors' summary modified.] **1574**

The administration of thyroactive iodinated protein, testosterone propionate, and diethylstilboestrol, singly or in combination, appeared to produce a slight increase in rate of gain and a slight but questionable increase in height at withers of dwarf beef cattle. There is no evidence that the dwarfism syndrome can be corrected by endocrine therapy with the thyroid, oestrogenic, or androgenic hormones.

FREY, H. M. & ALBERT, A. (1959). **Some aspects of iodine and thyroxine metabolism**

**in day-old chicks.** — *Acta endocr., Copenhagen* **30,** 61-69. [In English.] **1575**

Radioactive iodine inj. s/c was excreted slowly. That taken up by the thyroid was probably secreted very slowly. Radioactive thyroxine was also excreted slowly after s/c inj., mainly through the gastro-intestinal tract.—R.M.

—. (1958). **A discussion on the physiology and biochemistry of lactation.** — *Proc. roy. Soc.* Ser. B. **149,** 301-424. **1576**

This discussion was under the leadership of S. J. Folley and included the following papers: hormonal synergy in mammary growth (W. R. Lyons); mammary growth in relation to hormones with metabolic actions (D. Jacobson); the pituitary and maintenance of milk secretion (G. K. Benson, A. T. Cowie & J. S. Tindal); the central nervous system, neurohypophysis and milk ejection (G. W. Harris); pathways of glucose utilization (G. E. Glock & P. MacLean); biosynthesis of lactose (F. H. Malpress); precursors in the blood stream of milk proteins (J. M. Barry); steps in amino-acid incorporation into mammary tissue (M. J. Fraser & H. Gutfreund); recent research on the origin of milk fat (R. F. Glascock); mammary gland enzyme systems in the study of fatty-acid synthesis (P. Hele & G. Popják).—R.M.

Schulz, L.-C. (1958). Elektronenmikroskopische Untersuchungen der Herzmuskulatur des Schweines unter besonderer Berücksichtigung der sogenannten Kernreihen-Bildung. **[Study with the electron microscope of pig heart muscle, with special reference to chains of nuclei.]**—*Dtsch. tierärztl. Wschr.* **65,** 117-122. **1577**

The presence of chains of nuclei in pig myocardium was regarded as an indication of over-loading of the circulation. [8 photomicrographs.]—R.M.

Slätis, P. (1958). **The synthesis of prothrombin and proconvertin in the reticulo-endothelial system. An experimental study on rats.**—*Scand. J. clin. Lab. Invest.* **10,** Suppl. No. 33. pp. 83. [In English.] **1578**

The reticulo-endothelial system of rats was blockaded by injecting Thorotrast (a colloidal solution containing about 25 vol.% $ThO_2$). Blood from treated rats rapidly lost its prothrombin and proconvertin activity and, if treated rats had received dicoumarol, vitamin K failed to restore the activity. Total hepatectomy decreased the prothrombin and proconvertin activity to about 40% of the normal. From this evidence, the author concludes that the liver is not the only source of prothrombin and proconvertin, and that the entire reticulo-endothelial system plays a part in its synthesis.

—G. B. S. Heath.

Taylor, R. B. (1958). **Pancreatic secretion in the conscious sheep.**—*J. Physiol.* **143,** No. 2. pp. 81P-82P of Proceedings. **1579**

Continuous hourly collections of pancreatic juice were made over periods of 30 hours from 3 sheep with modified Thomas fistulas. The animals were fed at regular daily intervals. A variable volume of juice was secreted but the secretion of amylase declined 5-8 hours after the beginning of the experiments, irrespective of time of day. An infusion of pancreatic juice into the duodenum at the same rate as it was being secreted checked this fall. When the rumen was emptied 24 hours before the collection of juice both volume and amylase content were reduced, indicating that the stimulus to secretion was the presence of ingesta in the alimentary canal.

—J. E. Hammant.

Hellström, N. (1958). **A study in digestion. II. Further analyses of feces from sheep.**—*K. LandtbrHögsk. Ann.* **24,** 49-54. [In English.] **1580**

Disintegration of faeces suspensions by exposure to ultrasonic waves of 20 kc/sec. was more suitable for obtaining a coarse fraction almost free from protein than the method of mechanical disintegration previously described. [In the abstract of part I in *V.B.* **27,** 3736 it is erroneously stated that the paper is in Russian: it is in English.]—R.M.

MacDonald, N. S. (1958). **Kinetic studies of skeletal metabolism by external counting of injected radioisotopes: the radioisotope osteogram.** — *J. Lab. clin. Med.* **52,** 541-558. [Author's summary modified.] **1581**

Methods were devised for continuously recording variations of radioactivity in bone areas with time, following injection of bone-seeking radioisotopes. These graphic records were named radioisotope osteograms.

By using gamma scintillation detectors and pulse height analysers it was possible to record simultaneously on separate charts the fates of two different radioisotopes following injection of a mixture.

These techniques were used in rabbits to compare the clearance from blood and the accumulations in bone of radiostrontium, sodium and iodine.

Double tracer experiments with radiostrontium and chromium-tagged r.b.c. and radio-

iodine-labelled serum albumin elucidated certain kinetic aspects of calcium metabolism, such as vascular transport, transcapillary movements, ionic exchange, and bone salt accretion.

Osteograms obtained after injection of radiobarium-lanthanum and strontium mixtures showed that the behaviour of barium was similar to that of strontium, but radically different from that of lanthanum. Quantitative comparisons of long-term retentions of strontium and sodium in various types of bone tissue were made.

Information on the current metabolic status of a fracture could readily be obtained at any point during the course of healing, the data being provided by osteograms showing the uptake, during the first hour after injection, of serum albumin labelled with radiostrontium, sodium or iodine, and further daily monitoring of the bone areas.

Extension of the techniques to the study and diagnosis of metabolic disorders and lesions of the human skeleton is discussed.

NAYLOR, A. (1958). **Changes in the human intervertebral disc with age.**—*Proc. R. Soc. Med.* **51,** 573-576. **1582**

N. studied polysaccharides in intervertebral disks by means of X-ray diffraction, pressure measurement, and the properties of mucopolysaccharides. In the nucleus of the disk there was increasing tendency to crystallization and precipitation of the collagen after 30 years of age, which inhibited the uniform transmission of stress to the annulus. In the annulus rigidity is induced by the increased precipitation of collagen and a reduction in the biaxial character of the fibrils. The net result of these changes was increased inability to withstand strain on the annulus, coupled with an increase in strain due to loss of function of the annulus.—R.M.

MUNSICK, R. A., SAWYER, W. H. & VAN DYKE, H. B. (1958). **The antidiuretic potency of arginine and lysine vasopressins in the pig with observations on porcine renal function.** —*Endocrinology* **63,** 688-693. [Authors' abst. modified.] **1583**

In the dog arginine vasopressin, injected i/v, is a much more potent antidiuretic agent in terms of its vasopressor activity than lysine vasopressin. Arginine vasopressin appears to be the antidiuretic hormone of the dog and many other mammals, whereas lysine vasopressin is the antidiuretic hormone of the pig.

The pig can excrete about 20% of the glomerular filtrate during water diuresis. The glomerular filtration rate, the renal plasma flow and the maximal transfer of para-aminohippurate are all much higher in the pig than in most other mammals. The clearance of endogenous creatinine was lower than that of inulin.

HADEK, R. (1958). **Morphological and histochemical study on the ovary of the sheep.**—*Amer. J. vet. Res.* **19,** 873-881. [Author's summary modified.] **1584**

The morphological and histochemical features of the ovary of the ewe are described. An account is given of the morphological characteristics and the common histochemical reactions involved in oogenesis, follicular development and growth, follicular atresia, corpus luteum formation, and degeneration in the ovaries of 60 non-pregnant ewes. Polyovular follicles and multinuclear oocytes were present during pro-oestrus and oestrus. Their number was highest during oestrus. The histochemical reactions in the follicle indicate the presence of mucopolysaccharides, phosphatase enzymes, and lipids. The possible connexion between the presence of mucopolysaccharides and follicular hormones is discussed. The atresic wave affected the follicles during metoestrus and dioestrus, irrespective of their size and development. Atresic follicles contained stronger reacting mucopolysaccharides than healthy follicles. The possible significance of the reaction is discussed. The luteal cells were derived from the membrana granulosa and the theca interna. Histochemical reactions in the corpus luteum and in the pigment cells of the corpus albicans are described.

ASSALI, N. S., DASGUPTA, K., KOLIN, A. & HOLMS, L. (1958). **Measurement of uterine blood flow and uterine metabolism. V. Changes during spontaneous and induced labor in unanaesthetized pregnant sheep and dogs.** — *Amer. J. Physiol.* **195,** 614-620. [Authors' abst. modified.] **1585**

In either spontaneous or oxytocin-induced labour, uterine contractions were accompanied by a significant decrease in uterine blood flow and relaxations by return of the flow to normal or abnormal values. When the contraction was tetanic and was not followed by relaxation, uterine ischaemia was so severe that the foetus might die. After delivery and before expulsion of the placenta, uterine blood flow fell slightly; it fell sharply when the placenta separated and was expelled.

MALM, O. J., SKAUG, O. E. & LINGJAERDE, P. (1959). **Effect of pinealectomy on bodily growth, survival rate and $P^{32}$ uptake in the**

**rat.** — *Acta endocr., Copenhagen* **30,** 22-28. [In English.] **1586**

Although the physiological role of the pineal gland was still obscure, there seemed to be a connexion between the pineal gland and the gonadotrophic and corticotrophic activity of the adenohypophysis.—R.M.

ZHEDENOV, V. N. [Edited by.] (1957). **[Anatomy of the rabbit.]** pp. 309. Moscow: Gosud. izd. "Sovetskaya Nauka". 12r. 50k. (16s.) [In Russian.] **1587**

This gives a detailed account of the anatomy of the rabbit, incorporating numerous observations by Russian workers, and is not a dissection guide. While Zhedenov has written chapters on the musculature, internal organs, and embryology, other chapters have been contributed by various authors. There is a 13-page bibliography in which about half the references are Russian. There are 177 illustrations, but they are all line drawings. These, together with the paper and binding, are of poor quality and do not do justice to the text.—R.M.

HEGAZI, H. (1958). Die Blutgefässversorgung des Herzens von Rind, Schaf und Ziege. **[Vascularization of the heart in ox, sheep and goat.]**—*Zbl. VetMed.* **5,** 776-819. [Summaries in English, French and Spanish. English summary modified.] **1588**

Plastoid and rubber were injected into the hearts of 22 cattle, 15 sheep and 13 goats, and the origin, course and ramifications of the blood vessels supplying the heart were studied. The main arteries and veins of the 3 species are similar. An exact description of the blood supply of the septa and the papillary muscles in ruminants is given for the first time. The features of the interarterial and intervenous anastomoses are pointed out. So-called 'vascular bridges' between arteries and veins are found only in the heart of the goat.

VERHAART, W. J. C. & KRAMER, W. (1958). **The pyramid in the medulla and the cord of the elephant.** — *Acta morph. neerl-scand.* **2,** 174-181. [In English.] **1589**

In the elephant the pyramidal tract in the lower medulla consisted of fibres between 2 and 8$\mu$ in diameter, and was the only tract in the ventral medulla which contained fibres of this small size in large numbers. An anterior uncrossed pyramidal tract was described. The presence of comparable structures in horse, cow and goat was discussed.—R.M.

HARE, W. C. D. (1958). **Radiographic anatomy of the canine skull.**—*J. Amer. vet. med. Ass.* **133,** 149-157. **1590**

Full-page ventral and lateral radiographs of the skulls of an Alsatian dog and a bulldog are accompanied by tracings which identify the anatomical features.—R.M.

GUZAL, E. (1958). Über das Nierenbecken von Pferd, Hund, Schaf und Katze. **[The renal pelvis in horse, dog, sheep and cat.]**—*Acta vet. hung.* **8,** 53-67. [In German.] **1591**

A detailed anatomical study with 12 illustrations.—R.M.

ASHDOWN, R. R. (1958). **The arteries and veins of the sheath of the bovine penis.** — *Anat. Anz.* **105,** 222-230. [In English.] **1592**

This anatomical study was based on the examination of material from 6 foetuses, 2 calves and 64 adult bulls or castrated oxen. Analogies to vessels supplying the mammary gland were discussed.—R.M.

HILL, F. W., CAREW, L. B., JR. & VAN TIENHOVEN, A. (1958). **Effect of diethylstilboestrol on utilization of energy by the growing chick.** —*Amer. J. Physiol.* **195,** 654-658. **1593**

Increased fat production in chicks treated with diethylstilboestrol (15 mg. inj. s/c) was due primarily to increased energy consumption and to a lesser extent to preferential synthesis of fat at the expense of protein.—R.M.

URIST, M. R., SCHJEIDE, O. A. & MCLEAN, F. C. (1958). **The partition and binding of calcium in the serum of the laying hen and of the estrogenized rooster.**—*Endocrinology* **63,** 570-585. **1594**

The hypercalcaemia of laying hens and of oestrogen-treated birds of both sexes is one of the most striking alterations in the mineral metabolism of vertebrate animals. With the aid of the ultracentrifuge it was recently observed that the increase in serum calcium in oestrogen-treated cocks depends upon the appearance in plasma of a highly specialized phosphoprotein complex [*V.B.* **27,** 3661]. The present experiments deal with the mechanism and measurement of calcium binding by the proteins individually and as a mixture in serum, and the circumstances surrounding the deposition of these specialized proteins in egg yolk.—R.M.

## PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

KOHZ-BERNETT, D. (1958). Über einen Schnellnachweis von Mastitistherapeutika in der Milch. **[Rapid demonstration of sulphonamides and antibiotics in milk.]**—*Inaug. Diss. Munich* pp. 44. **1595**

Yoghurt culture was stated to be a suitable test medium for the rapid demonstration of antibiotics and sulphonamides in milk. Growth of yoghurt culture was inhibited by penicillin 0·22 i.u./ml.; chlortetracycline 0·04 μg./ml.; streptomycin 3·2 μg./ml.; and "Supronal", a proprietary sulphonamide, 0·31 mg./ml.—E.G.

FISK, F. W. (1958). **Toxicity of BHC in milk to house flies as related to butter fat content of the milk.**—*J. econ. Ent.* **51,** 560-561. **1596**

House-flies were fed milk from cows given BHC in the ration. Mortality was inversely proportional to the butter-fat content of the milk. Extraction of the flies in ethyl ether showed that this was not caused by the flies limiting their intake of fat. It is considered that the chemical potential of lindane is reduced by butter-fat, *i.e.*, the greater the amount of solvent butter-fat, the lower will be the saturation of lindane, and the less will be its tendency to diffuse out of the butter-fat. Moreover, much of the fat is excreted by the flies undigested.—M.G.G.

ANON. (1958). **Radioactivity study.** — *Publ. Hlth Rep., Wash.* **73,** 633. **1597**

In 1957 a gallon sample of milk was taken monthly, from April onwards, from dairies supplying 5 cities in the U.S.A. The year's average radioactivity per litre of milk in each city ranged from 35 to 275 μμc. of $I^{131}$; 14·7 to 78·3 μμc. of $Sr^{89}$; 3·4 to 7·4 μμc. of $Sr^{90}$; 19·5 to 98·5 μμc. of $Ba^{140}$; and 27·3 to 43·7 μμc. of $Cs^{137}$.—M.G.G.

WELLS, F. E. & STADELMAN, W. J. (1958). **Development of yeasts on antibiotic-treated poultry.**—*Appl. Microbiol.* **6,** 420-422. **1598**

Yeasts of the genera *Rhodotorula, Torulopsis* and *Cryptococcus* were isolated from normal carcasses and carcasses which had been dipped in antibiotic solutions but more often from treated than untreated carcasses. A larger proportion of chlortetracycline-treated carcasses developed yeast spoilage than oxytetracycline-treated, possibly as a result of reduction in the competing bacterial flora. *Torulopsis candida* appeared to be stimulated by the antibiotics.

—R.M.

ROWLEY, I. (1958). **Behaviour of a natural rabbit population poisoned with "1080".** — *C.S.I.R.O. Wildlife Res.* **3,** 32-39. [Author's summary modified.] **1599**

The poisoning of a natural rabbit population with sodium fluoroacetate ("1080") at the height of the breeding season is described. Preliminary feeding with unpoisoned bait appeared to change both the pattern and the timing of the rabbits' activities and to increase progressively their confidence towards both bait and furrow. A satisfactory kill was obtained despite the presence of lush pasture. The composition of the surviving group is discussed and means of improving efficiency of poisoning are suggested.

GRODZICKI, J. (1958). Służba weterynaryjna a ubezpieczenia zwierząt. **[Veterinary services and insurance of animals in Poland.]**—*Méd. vét., Varsovie* **14,** 426-430. [In Polish.] **1600**

Since 1954 insurance of horses and cattle has been obligatory and of pigs and poultry voluntary. There is a very close co-operation between the National Insurance Society and the veterinary profession. Veterinary certificates are required before the animals can be insured and before compensation is paid. These certificates are very useful for statistics of the causes of losses among farm animals. The animals are covered up to 70% of their market value and to qualify for compensation good care and management of healthy animals are essential and veterinary advice must be sought as soon as the animal becomes ill. The National Insurance Society helps financially with purchases of veterinary and laboratory equipment and publishes scientific papers and popular publications on prophylaxis; it subsidizes research into control of diseases and until recently extended loans to veterinary surgeons for the purchase of cars.

—M. GITTER.

MATCHANOV, N. M. & NETSETSKII, M. A. (1958). **[Veterinary services in the Uzbek S. S. R.]** — *Veterinariya, Moscow* **35,** No. 5 pp. 124-128. [In Russian.] **1601**

Veterinary services began in 1924 when the Veterinary Bacteriological Institute was founded. The State Veterinary Board was established in 1930 and this set up the 10 provincial and 15 regional veterinary laboratories. In 1957, 21,842 animals were vaccinated and 10,690 were given anthelmintics, Artificial insemination began in 1957, when 9,972 cows were inseminated. On collective farms 55% of Astrakhan sheep and 83% of sheep of other breeds were inseminated in 1957.—E. L. URCH.

SHENZHE, P. & SHELASHSKI, V. A. (1958). **[Veterinary services in the Mongolian Peoples' Republic.]** — *Veterinariya, Moscow* **35,** No. 8 pp. 83-84. **1602**

The State veterinary service was founded in 1924. There are now 258 veterinary surgeons (1 to every 240,000 head of stock) and 1,448 veterinary assistants. Diseases which have been completely eradicated are rinderpest, foot and mouth disease, caprine contagious pleuropneumonia. Sheep pox and bovine contagious pleuropneumonia have been brought under control. Losses from anthrax, blackleg, haemonchus infestation and other diseases have been reduced. —R.M.

*See also abstr.* **1289-1290** (TB. in man from animals); **1323 & 1328** (brucellosis); **1402** (development of a veterinary service in Nepal); **1420** (human infection with distemper and haemagglutinating virus of Japan).

## LIVESTOCK HYGIENE

GROSSBARD, E., MINSON, D. J., DAVIES, W. & HORNE, T. (1958). **Preservation of grass for winter-feeding by radiation sterilization.**— *Nature, Lond.* **182,** 331. **1603**

Samples of from 50 g. to 2 kg. of rye-grass were packed into cans and exposed to radiocobalt. Complete sterilization was obtained with doses of 2 × $10^6$ rads for every 50–100 g. Irradiated samples were stored for 6–18 months: those kept in the dark at 4°C. retained a green colour, while those kept in the light at room temp. turned to a straw colour after 2–3 months. Batches stored a month were fed to six sheep: the grass appeared to be palatable.—R.M.

## REPRODUCTION AND REPRODUCTIVE DISORDERS

VAN DAM, G. C. (1958). **Two photometric methods for measurement of bull sperm motility.** — *Tijdschr. Diergeneesk.* **83,** 1243-1257. [In English. Summaries in Dutch, French and German. English summary modified.] **1604**

Two photometric methods (extinctiometric and nephelometric) are described for determining motility of bull spermatozoa. For both, comparison with visual estimates is made.

The results of both methods show good correlations with estimated motility; the correlation coefficients are 0·937 ($P<0·001$) and 0·929 ($P<0·01$). It is intended to continue the research shortly for a further determination and possible improvement of the accurary, to find optimal conditions and to design instruments suitable for practical use.

Both methods are meant for determination of the percentage of motile cells; the first method might also provide data on the velocities of the cells.

WALES, R. G. & WHITE, I. G. (1958). **The effect of alkali metal, magnesium, and calcium ions on the motility of fowl spermatozoa.**— *Aust. J. biol. Sci.* **11,** 589-597. [Authors' summary modified.] **1605**

Potassium (5–45 mM), magnesium (1·5–13·5 mM), and calcium (0·3–2·7 mM) chlorides each increase the viability of fowl spermatozoa *in vitro* when added to a diluent composed of 0·02 M sodium phosphate buffer, 0·5% sodium chloride, and 1·5% glucose. Additive effects were given by potassium in combination with magnesium or calcium but motility in the diluent containing magnesium and calcium was less than would be expected from the sum of their separate effects. Calcium ions in concentrations greater than 0·3 mM caused agglutination of the spermatozoa. Washing twice or more was harmful to fowl spermatozoa and the effect of potassium was relatively greater on the washed than the unwashed cells. Rubidium ions were as effective as potassium ions in stimulating motility, caesium ions were ineffective, and lithium and ammonium ions were toxic. Potassium levels in excess of 180 mM depressed the motility of fowl spermatozoa and diluents composed entirely of potassium salts are therefore undesirable.

BLACKSHAW, A. W. (1958). **The effects of incubation temperature and cold shock on the metabolism of ram spermatozoa.** — *Aust. J. biol. Sci.* **11,** 581-588. [Author's summary.] **1606**

The glycolysis of ram semen was measured at 37, 21, and 5°C. Measurements of $Q_{10}$ over this range gave values between about 2 and 3 for changes in lactic acid and total reducing substances. Cold shock greatly reduced glycolysis and dehydrogenase activity which were only partially maintained by egg yolk and lecithin.

BARR, T. R. (1958). **Levels of antibiotics in bull semen plasma following intramuscular injection.**—*Canad. J. comp. Med.* **22,** 297-304. **1607**

The increased use of artificial insemination in cattle breeding could greatly enhance the hazard of spread of genital infections. As a preventive and control measure, antibiotics are now added to diluted semen samples as a routine procedure. An investigation was made into the possibility of the intramuscular administration of antibiotics as a useful method of treatment of genital infections.

Results of studies indicated that large doses of penicillin and oxytetracycline intramuscularly in bulls had only a limited value in treatment of genital diseases and the level of streptomycin in seminal plasma had no therapeutic effect. It was thus demonstrated that the parenteral administration of these antibiotics to bulls was no substitute for the routine addition of these agents to semen.—R. V. L. WALKER.

HERRICK, J. B. (1958). **An aid to collection of semen by electroejaculation; Chlorpromazine hydrochloride.**—*Vet. Med.* **53,** 473-474. **1608**

Intramuscular doses of 0·25 mg./kg. body wt. generally had a tranquillizing effect but did not inhibit erection of the penis and ejaculation. This dosage was used on 16 bulls subjected to electroejaculation: 9 became quiet, 2 became depressed, 2 became uncontrollable, 1 refused to ejaculate, and 1 had ataxia when released.

—R.M.

MILLAR, P. G. (1958). **The Weybridge pattern artificial vagina.** — *Brit. vet. J.* **114,** 294-296. **1609**

A new type of artificial vagina was designed to overcome several disadvantages of the conventional type. It is constructed of plastic, with a plastic liner having an elliptical orifice. The collecting tube is fully enclosed in the end of the apparatus. Temperature of the water jacket is indicated on a dial thermometer built into the wall of the jacket. It can be constructed in various sizes for different species of animal and may be sterilized by moist heat.—R.M.

ALBRIGHT, J. L., ERB, R. E. & EHLERS, M. H. (1958). **Freeze-drying bovine spermatozoa.** —*J. Dairy Sci.* **41,** 206-207. **1610**

Eight semen samples from five bulls were diluted 1:4 with whole milk at 95°F. and streptomycin, 1,000 μg./ml., was added. The samples were then placed in water at 85°F. and allowed to cool to 40°F. (ambient temp.) for 20 min. They were removed from the water bath and allowed to stand at 40°F. (air temp.) for 1 hour. 20% glycerol was then added in ⅓ quantities every 20 min. until a 1:8 dilution was obtained. Six of the samples were allowed to stand for 18 hours and two for 10 hours at 40°F. Aliquots in vials were then frozen at the rate of 2·5°F. per min. to 5°F. Dry ice was added to the container and the temperature brought down to −60°F, when the semen was subjected to a drying process and afterwards stored at −110°F. Reconstitution was effected by rapid addition of a 3% fructose soln. at 100°F. In 5 samples 5–10% of the spermatozoa showed progressive motility after reconstitution; in the remaining 3 there was no motility.—T.E.G.R.

RIVAS GODAY, J. J. (1958). La conservación del esperma por anabiosis a frigore. **[Conservation of semen at low temperatures.]** — *Rev. Patronato Biol. anim., Madrid* **4,** 45-73. **1611**

Conservation of semen may be effected at just above 0°C. ("partial anabiosis") or at −79°C. ("total anabiosis"). These methods are described and their respective merits and disadvantages discussed.—T.E.G.R.

NOYES, R. W., WALTON, A. & ADAMS, C. E. (1958). **Capacitation of rabbit spermatozoa.** —*J. Endocrin.* **17,** 374-380. **1612**

Capacitation was a rather non-specific phenomenon. It did not depend on the existence of oestrus, nor was it restricted to the female reproductive tract. Since spermatozoa underwent capacitation in the anterior chamber of the eye, a mucosal surface does not appear to be essential for the phenomenon.—R.M.

VANDEPLASSCHE, M. (1957). **The normal and abnormal presentation, position and posture of the foal-fetus during gestation and at parturition.** — *Med. Veeartsenijschool Ghent* **1,** No. 4. pp. 36. [In English. Summaries in French and German.] **1613**

Because the author considers abnormal presentations to be a frequent source of trouble in mares he has attempted a study of the various positions, normal and abnormal, which the foal may adopt during pregnancy and at parturition.

The material available was 77 pregnant normal mares slaughtered at various stages of parturition and specimens or data from 27 serious cases of dystokia, some of which were corrected whilst, in others, the mare was destroyed. In addition, numerous observations were made by rectal palpation of the uterus of pregnant mares at various stages of gestation. In 40 cases the chorio-allantois was examined after parturition.

There are numerous conclusions of interest to the specialist.

All except one of the genital tracts showed

monocornual pregnancy and longitudinal presentation. During the first 6 months of gestation the foetus often lies in the position of posterior presentation but this is completely reversed by 8 months, in 98% of cases. Bicornual pregnancy is very rare. By rectal palpation during the last week of pregnancy it is impossible to predict the exact type of presentation which will occur. It is difficult to provide an explanation for the cause and pathogenesis of ankylotic deformities of the head, neck and limbs which often lead to dystokia.

The various observations and conclusions are supported by an extensive series of photographs.—L. W. MAHAFFEY.

BROOME, A. W. J. & LAMMING, G. E. (1958). **The influence of ovarian hormones on resistance to uterine infections.** — *Vet. Rec.* **70,** 603-604. **1614**

Although the bactericidal action of the blood or isolated uterine secretions did not differ in the oestrous or progestational uterus of cows and rabbits, the oestrous uterus was capable of reducing experimental uterine infections within 4 hours. Uterine antibody production was too slow to account for this reaction. In rabbits the reticulo-endothelial cells were found to be mobilized more rapidly in the oestrous uterus and the increased infiltration of leucocytes corresponded to the disappearance of the bacteria. Uterine drainage through the cervix in oestrous animals also assisted in rapid removal of the products of infection.—J. E. HAMMANT.

HIGNETT, P. G. & MOUSTGAARD, J. (1958). **Sterility among grazing animals.** In "Control of diseases in cattle and sheep at pasture" pp. 125-142. Paris: The European Productivity Agency of the Organisation for European Economic Co-operation. **1615**

A discussion of the literature on nutritional sterility, and the action on ruminants of oestrogens in plants.—R.M.

SOULAIRAC, A. & SOULAIRAC, M.-L. (1958). Atrophie testiculaire par lésions du cortex cérébral chez le rat. **[Testicular atrophy caused by lesions of the cerebral cortex of rats.]** — *C. R. Soc. Biol., Paris* **152,** 921-922. **1616**

Surgical lesions of the anterior cerebral cortex resulted in testicular atrophy. Lesions of the central or posterior cortex did not have this effect.—R.M.

DAWSON, F. L. M. (1958). **Thyroid dysfunction and infertility.**—*Vet. Rec.* **70,** 842. **1617**

A discussion of the evidence of effect of hyper- and hypo-thyroidism on the lactation and breeding performance in cows. A deficiency of iodine was considered to be a cause of infertility.—J. E. HAMMANT.

HAFEZ, E. S. E., O'MARY, C. C. & ENSMINGER, M. E. (1958). **Albino-dwarfism in Hereford cattle. A sublethal character.**—*J. Hered.* **49,** 111-116. **1618**

An apparently healthy bull was mated to two of his full-sisters, two of his half-sisters and two unrelated cows. The full sisters each produced an albino calf of normal size, which died soon after birth. One half sister produced an albino dwarf which died when 14 weeks old and the other a normal calf. One unrelated cow gave birth to a dwarf of normal colour which survived and the other to a calf of normal appearance which, however, died at birth. Morphological and anatomical anomalies of the albino dwarf included protrusion of eyes and tongue, weakness, incoordinated gait, bulging forehead, undershot mandible, supernumerary incisor buds and a spherical heart. The mode of inheritance was not established.—E.G.

NES, N. (1958). Arvelig tungemisdannelse, ganespalte og hareskår hos gris. **[Hereditary abnormalities of the tongue, cleft palate and harelip in pigs.]** — *Nord. VetMed.* **10,** 625-643. [In Norwegian. Summaries in English and German. English summary modified.] **1619**

A congenital defect of the tongue in piglets occurs in 2 different herds of Norwegian Landrace pigs. The condition was usually accompanied by cleft palate and sometimes by harelip as well.

The middle part of the apex was lacking and the anterior part of the tongue, which usually consisted of two lobes, was attached to the lingual gingiva. In a single case the tongue was split into several lobes.

Affected piglets were born alive, but died within one or two days.

In the herds mentioned, two sows produced 12 defective and 32 normal piglets when mated to the same boar. Mated to unrelated boars, these sows farrowed normal piglets only.

The occurrence of this sublethal condition can be explained on the basis of a single recessive, autosomal gene. This gene appears to have been transmitted by breeding animals imported from Sweden, where the same or very similar defects have been found in Large White pigs.

MADDEN, D. E., ELLIS, D. J., BARNER, R. D., MELCER, I. & ORTEN, J. M. (1958). **The occurrence of congenital porphyria in Holstein-Friesian cattle.** — *J. Hered.* **49,** 125-127. **1620**

Genetic and clinical study of congenital porphyria in 11 cattle indicated that the condition is inherited as a simple recessive gene.

—E.G.

*See also absts.* **1318-1336** (brucellosis); **1346** (leptospiral abortion in cattle); **1349-1351** (vibriosis); **1353** (ovine posthitis); **1477** (neoplasms as cause of sterility in buffalo cows); **1481** (ovarian adenocarcinoma in a fowl); **1638** (report, Milk Marketing Board); **1641** (report, Rhodesia & Nyasaland); **1648** (book, artificial insemination in cattle).

## ZOOTECHNY

BONIWELL, B. A., TRIBE, D. E. & WARDROP, I. D. (1958). **Effect of hexoestrol implantation on growth rate and carcass quality of weaner lambs.**—*J. Aust. Inst. agric. Sci.* **24,** 358-360. **1621**

Two separate drafts of fat lamb weaners were each divided into two groups and the lambs in one group of each draft were treated with 15 mg. hexoestrol. The lambs were grazed on rape and turnips and one draft slaughtered 34 days after implantation and the other 48 days after implantation. There was a significant increase in liveweight gain in the treated group in the second draft, but in neither draft was there a response in carcass weight or specific gravity of carcass. 48% of the treated carcasses and 11% of the controls were classed as having excessive udder development.—T. GRAINGER.

PRESTON, T. R. & GEE, I. (1958). **The influence of the route of administration on the effect of hexoestrol on fattening wether lambs.**—*Brit. J. Nutr.* **12,** 158-163. **1622**

Hexoestrol was administered to groups of 10 wether lambs aged 5 months: s/c (15 mg. pellet); s/c (3 × 5 mg. pellets); 2 mg. or 4 mg. in the food daily for about 90 days. A fifth group was left untreated. Live weight gains of the treated groups, expressed as percentages of that of the untreated group, were 112, 119, 111 and 113 respectively. These differences were not statistically significant but the mean gain in all the treated groups together was greater than that in the untreated group. In treated animals there was greater development of thyroid, pituitary and mammary glands and leg joints contained less fat and more muscle and bone. Lambs with three implants absorbed significantly more hexoestrol than those with one implant.

—T.E.G.R.

SOKOLOV, A. V. & KOTOV, P. Y (1958). **[Use of therapeutic serum "LSB" for fattening cattle.]** — *Proc. Lenin Acad. agric. Sci.* **23,** No. 8. pp. 27-29. **1623**

The authors employed as a growth stimulant the "therapeutic serum" ("LSB") described by Belen'kii [*V.B.* **26,** 3644; **27,** 910; **28,** 1960]. 20 cattle each weighing about 222 kg. were treated and 19 others were kept as untreated controls. The preparation was given i/m in doses of 10 ml./100 kg. After 3 initial doses on consecutive days, it was given once a week for 3½ months. The gain in weight during this period averaged 67·9 kg. against 60·1 in the controls. Carcass weights averaged 142·6 kg. in treated cattle and 132·2 in the controls.—R.M.

HART, P. C., KROESKE, D., V. D. VEEN, H. E., DAMMERS, J. & KROES, Y. (1958). Proefnemingen over manuelle castratie. **[Growth and carcass quality of spayed pigs.]** — *Tijdschr. Diergeneesk.* **83,** 842-851. [In Dutch. Summaries in English, French and German.] **1624**

Studies on 78 spayed gilts revealed that growth and carcass quality were poorer than in intact gilts. Cytological changes in the pituitary gland of spayed gilts were described.—R.M.

BLOMQUIST, S. M. (1958). **Some observations on the electrical stunning of pigs—1.**—*Food Manuf.* **33,** 455-458. **1625**

B. reported experiments undertaken by a committee on slaughtering methods of the Danish Academy of Technical Sciences. A method, described as the short interval method, has been found almost to eliminate muscle haemorrhages: a shackle is placed around a hind leg and the pig is pulled towards a hoist. Stunning commences just before the shackle is connected to the hoist which conveys the pig to the bleeding position. In Denmark 2-electrode tongs are used and 0·2 to 0·3 amp. at 70–90 volts flows through the electrodes when they are applied to dry skin behind the ears. The flow rises to 0·6–0·8 amp. if the skin is wet.—R.M.

VAN SANTEN, R. (1958). Nogmaals de spierbloedingen bij varkens na electrische bedwelming. **[Haemorrhages in muscle of slaughtered pigs in relation to electrical stunning.]** — *Tijdschr. Diergeneesk.* **83,** 861-868. [In

Dutch. Summaries in English, French and German.] **1626**

The author commented on an increase in the incidence of muscular haemorrhages in slaughtered pigs. Although the condition was associated with electrical stunning, the exact cause was not clear, and the increase could not be attributed to a reduction in the amperage employed in Dutch abattoirs. Ways of avoiding the condition were suggested.—R.M.

BJÖRCK, G. (1958). **Studies on the draught force of horses. Development of a method using strain gauges for measuring forces between hoof and ground.**—*Acta agric. scand.* Suppl. No. 4. pp. 109. [In English.] **1627**

Forces between hoof and ground were measured by strain gauges in special horse-shoes. Deflection of metal bars within the gauges was measured electrically and leads from each hoof were connected to recording apparatus on a trolley drawn by the horse. Between the horse and the trolley was a weighted sledge. Draught resistance was measured by a dynamometer attached to the sledge. From the results, B. discussed symmetry of force between left and right legs; the relationship between hoof force and draught resistance at different levels of the latter; distribution of force between fore and hind limbs; and the relationship of weight of the horse to force developed during work.—R.M.

CUNNINGHAM, I. J. (1958). **Housing a guinea pig colony.**—*N. Z. J. agric. Res.* **1**, 750-756. [Author's summary modified.] **1628**

A description is given of a system of managing a g.pig colony at Wallaceville Animal Research Station so as to use labour and foodstuffs as efficiently as possible. The animals were kept in wooden cages.

I. MYKYTOWYCZ, R. (1958). **Social behaviour of an experimental colony of wild rabbits, *Oryctolagus cuniculus* (L.). I. Establishment of the colony.**—*C.S.I.R.O. Wildlife Res.* **3**, 7-25. **1629**

II. MYKYTOWYCZ, R. & ROWLEY, I. (1958). **Continuous observations of the activity of the wild rabbit, *Oryctolagus cuniculus* (L.), during 24 hour periods.**—*Ibid.* 26-31. **1630**

I. The social and territorial behaviour of a small colony of wild rabbits, all individually marked, was studied from the time of their introduction into a 1¾-acre enclosure until the commencement of breeding. The animals' resting places were recorded daily, and observations of their activity and mutual reactions were made during frequent evening and night watches.

It became apparent that the social life of the colony was based on a rigid hierarchy of dominance and subordination, bucks dominating bucks, does dominating does, and the top-ranking buck controlling the group.

Experimental manipulation of the colony involving the removal of selected animals, and their re-introduction at suitable intervals, demonstrated a sort of compulsion to re-establish a clearly defined ranking order.

Characteristic behaviour of dominant rabbits is described.

II. Continuous observations during three separate 24-hour periods were carried out in late spring on a population of individually marked wild rabbits established in an artificially illuminated enclosure. Observations were made on general activities, grazing, maternal behaviour, copulation, and aggressive behaviour. The bearing of the observed pattern of activity on the reliability of sight counts for the estimation of rabbit populations is discussed.

—A. G. CULEY.

*See also abst.* **1649** (book, dairy cattle breeding in the tropics).

## TECHNIQUE AND APPARATUS

SWIM, H. E. & PARKER, R. F. (1958). **Stable tissue culture media prepared in dry form.**—*J. Lab. clin. Med.* **52**, 309-311. **1631**

The authors described the preparation of a dry mixture of mineral salts, amino-acids, vitamins, glucose and streptomycin. This was found to be more suitable for storage than liquid culture media.—R.M.

SCHAPIRO, S. & STJARNE, L. (1958). **A method for collection of intermittent samples of adrenal vein blood.**—*Proc. Soc. exp. Biol., N.Y.* **99**, 414-415. [Authors' summary modified.] **1632**

The method is applicable to rats, dogs, cats and other lab. animals. It has the advantage of involving no manipulation, tension or interference with adrenal haemodynamics during periods of collection or when the adrenal effluent is being returned to the animal through a cannula placed in an ipsilateral abdominal vein.

LEBEDEV, L. A. & SAZONOV, V. M. (1958). **[New preservative for prolonged storage of blood from cattle and horses.]**—*Veterinariya, Moscow* **35**, No. 5 pp. 90-97. [In Russian. Summary in English.] **1633**

Ox blood was stored for 60–70 days and horse blood for 80–88 days before the onset of haemolysis, using a mixture of 10 ml. of 5% or 6% sodium citrate soln., 1 ml. of hydrochloric acid, and 1 ml. of 60% glucose soln., and blood added to make 100 ml.—E. L. Urch.

Crockford, J. A., Hayes, F. A., Jenkins, J. H. & Feurt, S. D. (1958). **An automatic projectile type syringe.**—*Vet. Med.* **53,** 115-119. **1634**

The syringe was designed to inject agents such as nicotine in order to immobilize animals which were difficult to catch. It consisted of an aluminium cylinder with a projecting hypodermic needle which could be fired from a rifle operated by $CO_2$. The plunger of the syringe was actuated by gas formation from the reaction of calcium carbide with water (or any similar gas-forming reaction). The maximum effective range for i/m inj. was 40 yards. Between 1 and 5 ml. of narcotic could be injected. The device was tried on wild goats, deer, cattle, lions and other wild mammals.—R.M.

Silver, J. (1958). **New two-compartment disposable plastic syringe.**—*J. Amer. vet. med. Ass.* **133,** 552-553. [Author's summary modified.] **1635**

The importance of parenteral administration calls for modernized materials and methods for speedy economical use of drugs. A disposable plastic syringe is now available which contains the dry powdered drug in one compartment and the diluent in another, ready for instant mixing and administration. Sterility is assured, and the hazards of contamination by transfer from vial to syringe are avoided.

Hansen, L. H., Jakobsen, K. F. & Ruben, H. (1959). Artificiel respiration på spaedkalve. [**Artificial respiration applied to new-born calves.**] — *Nord. VetMed.* **11,** 55-61. [In Danish. Summaries in English and German. English summary modified.] **1636**

An apparatus employed in human medicine for artificial respiration (Ruben's resuscitator) is described. The apparatus was used for artificial ventilation of the lungs of new-born calves with experimental apnoea. Artificial respiration was maintained for 11–45 min. until spontaneous respiration was resumed. The results and examinations of atelectatic lungs indicate the use of the apparatus in apnoea and asphyxia in new-born calves.

*See also absts.* **1292** (niacin differentiation of tubercle bacilli); **1296** (rapid isolation & identification of swine erysipelas bacilli); **1343** (laboratory diagnosis of leptospirosis); **1344** (isolation of leptospires); **1380** (growth of Theileria in tissue culture); **1398** (synthetic medium for tissue culture); **1416-1418** (tissue culture of Teschen disease virus); **1595** (demonstration of antibiotics and sulphonamides in milk).

## MISCELLANEOUS

Anon. (1957). **The planning of international meetings. A handbook issued by the Council for International Organizations of Medical Sciences established under the joint auspices of UNESCO and WHO.** pp. 113. Oxford: Blackwell Scientific Publications. **1637**

Congresses, conferences, symposia and other kinds of international meetings are commonplace in the present time and many workers in all branches of science find themselves involved on occasion in the organization, planning and running of such meetings.

This little book gives most useful information on many aspects which are apt to be overlooked and which do much to influence success or failure.

It will be found to be very useful and can be recommended.

## REPORTS

Great Britain. (1958). **Milk Marketing Board. Report of the Production Division, 1957/58. (No. 8.)** pp. 167. Thames Ditton: The Board. [Items of veterinary interest pp. 118-125.] **1638**

Development in the storage of frozen semen is discussed. The temperature safety margin when handling semen already frozen has always been considered critical and, therefore, in order to make certain that constant low temperature storage does not affect fertility, it was felt that new storage refrigerants should be investigated, especially when there is need for a long term, rather than a short term, approach to the problem.

Field investigations of artificially inseminated herds usually indicate that the larger the herds, the lower the breeding efficiency. It was felt that artificial insemination centre records should be examined to substantiate this fact. Preliminary results confirm this belief. It may be desirable to extend this study to make sure that the small herd sample is, in fact, not a selection of females from a large herd.

Enquiries were carried out as to abnormalities in cattle, some of which were attributed to heredity. In the first year 588 reports were received. Of these 385 affected the skeleton, 102 the head, thorax and abdomen, 14 the udder and teats, 23 the skin, hair and muscle, 20 the reproductive tract and 44 were classified as multiple abnormalities. A survey was also made on the use of *Brucella abortus* Strain 19 vaccine.

—D. S. RABAGLIATI.

CANADA, ONTARIO. (1957). **Report of the Veterinary Director General, for the year ended March 31, 1957.** [WELLS, K. F.] pp. 31. Ottawa : Edmond Cloutier, Queen's Printer. **1639**

There appears to be continuing demand for increased services in the field of livestock and poultry disease control and meat inspection, but difficulties are created through the shortage of veterinary officers.

No serious outbreaks were reported throughout the year and the established reportable diseases remained at a satisfactory level. Bovine TUBERCULOSIS control is continually extending in the various provinces and only 0·13% reactors were found among over two million animals tested. In BRUCELLOSIS control the vaccination continues with increased interest, with the handling of over 700,000 calves under the Federal-Provincial Programme. A new Area Brucellosis Eradication Programme is at present being formulated.

The year marks the fiftieth anniversary of the establishment of the meat inspection service in Canada, and to meet the continuing demand for additional services, the inspection services were extended into 11 new establishments. In the 161 plants with inspected slaughterings the increase was: — in poultry 90·4%, in cattle and calves 7·1% and in pigs 6·2%, or a general overall increase of 42·67% over the previous year.

—R. V. L. WALKER.

INDIA, BIHAR. (1957). **Annual report of the Livestock Research Station, Bihar, Patna, for 1956-57.** pp. 29. India, Bihar: Superintendent, Secretariat Press. **1640**

The work reported was mainly of routine diagnostic type. Outbreaks of infestation with immature amphistomes in cattle, sheep and goats were encountered. Trichomonads were detected in a "sample of vaginal discharge" [species of animal not stated]. Sarcoptic mange of goats could not be transmitted to lambs.

—R. N. MOHAN.

FEDERATION OF RHODESIA AND NYASALAND. (1958). **Annual report of the Secretary to the Federal Ministry of Agriculture for the year ended 30th September 1957.** [CORRY, J. R.] pp. 178. Salisbury: Govt. Printer. [Includes Report of Director of Veterinary Services and of Director of Tsetse and Trypanosomiasis control. pp. 123-172.] **1641**

S. Rhodesia remained free from F. & M. DISEASE for 19 months during 1956–57 until two outbreaks, attributable to game, in July, 1957, of S.A.T.1 and 2 respectively. Lesions were noted in kudu, duiker, wildebeeste, eland and sable. Simultaneous outbreaks were reported in S. Africa and Bechuanaland. RABIES was still endemic, 59 cases being diagnosed histologically or biologically. 31 were dogs and 3 were human cases, the latter being of interest in that one African died after an incubation period of 58 days despite treatment within half an hour of the bite, with carbolic acid, 600,000 units penicillin and commencement of a course of 14 vaccine injections. Since the beginning of vaccination of the dog population, 116 vaccinated dogs have died from rabies, of which 53 died six months after vaccination and a further 22 after an unknown period. 6 were vaccinated twice and one three times. Local tie-up orders for 90 days were imposed as an adjunct to control by vaccination.

A brief description of the history of THEILERIASIS in S. Rhodesia is included.

An afebrile AGALACTIA with mimimal mammary development in sows was shown to be related to the feeding of ergotized millet (*Pennisetum typhoides*).

A unit to control TRYPANOSOMIASIS was initiated as recommended by a Commission of Enquiry into Animal and Human Trypanosomiasis. 4,954 more smears were taken, 224 more cases in animals were diagnosed and 14,435 more inoculated. Of 27,982 smears 422 were positive. Antrycide D.M.S. was used every two months to control infection but the protective cover afforded thereby may have the effect of masking the true position.

Aerial spraying, erection of game fences, bush clearing and settlement were measures taken against tsetse-fly with a shift away from the emphasis on game destruction (18,003 animals were killed against 34,208 and 41,576 for the previous two years). Human trypanosomiasis was lowest for many years: three cases. In one district, *T. congolense* and *T. brucei* occurred in donkeys more frequently than *T. vivax*.

Professor Rasbech, F. A. O., visited S. Rhodesia to advise on breeding problems [*V.B.*

**28, 4150**] which stemmed mainly from subfertility, contagious epididymitis, vibriosis, Rift Valley fever and Wesselsbron virus.

—J. H. DARBYSHIRE.

BRITISH GUIANA. (1958). **Annual report of the Director of Agriculture for the year 1956.** pp. 66. Georgetown, Demerara: The "Daily Chronicle" Ltd. [Items of veterinary interest pp. 45-56.] **1642**

Tuberculin tests were carried out on all Government owned cattle and no reactors found. All Land Settlement cattle were also tested and out of 800, eight were reactors.

Outbreaks of paralytic RABIES increased. Vaccination was continued in the Demerara River area and an outbreak occurred in the Berbice River, the first case known in that area. 5,000 cattle and 211 horses were inoculated.

An outbreak of SWINE FEVER was reported and said to be due to pigs imported from the United Kingdom.

Fifty-two cases of ANAPLASMOSIS and six of PIROPLASMOSIS were treated but probably the diseases were much more extensive.

In veterinary research, cases of cirrhosis of the liver in cattle were investigated and diagnosed as HEPATOGENOUS PHOTOSENSITIZATION. SWAYBACK was encountered in lambs. In fowls ASPERGILLOSIS, MONILIASIS and "ROUND HEART" DISEASE occurred.—D. S. RABAGLIATI.

BRITISH HONDURAS. (1956). **Annual report of the Agricultural Department for the year 1956.** pp. 38. British Honduras: Printing Department. [Veterinary Officer's Report. pp. 16-17.] **1643**

GLANDERS has been suspected in the past, and this year 340 equine animals (15% of estimated population) were tested with mallein by the intrapalpebral test, with negative results.

VESICULAR STOMATITIS occurred in cattle, mostly in young stock.

TICK FEVER (*Babesia bigemina*) was detected in a bull imported from the U.S.A. It is seldom seen save in imported cattle.

Infective WARTS are prevalent in cattle under three years of age. They show no signs of spontaneous recovery, but injection of 6% lithium antimony thiomalate proved successful in 23 cases (72%).

No swine fever has been seen for two years.

FOWL TYPHOID causes considerable losses and FOWL POX serious mortality in young chickens and turkeys. NEWCASTLE DISEASE has been widespread and movement has been restricted and extensive vaccination carried out. In all, about 25,000 birds have been vaccinated.

Some eleven legislative ordinances dealing with animal disease are listed for the year.

—D. S. RABAGLIATI.

GRENADA. (1958). **Report on the Agricultural Department for the year 1957.** pp. 57. St. George's, Grenada: Govt. Printer. [Veterinary Report pp. 27-28.] **1644**

No notifiable diseases occurred except RABIES, which notably increased. 19 dogs, one cow, three equines and one pig were affected. Previous outbreaks of rabies had been confined to cows and equines. Diagnosis was by the finding of Negri bodies in the brain.

No less than 3,608 dogs were destroyed and those left appeared to be under control. Registration and vaccination of dogs are being considered for the future.

Amongst non-notifiable diseases recorded, were DISTEMPER in dogs, TETANUS in horses and MASTITIS in cattle, usually the acute type which responded to penicillin.—D. S. RABAGLIATI.

ZANZIBAR PROTECTORATE. (1958). **Annual Report of the Department of Agriculture, 1957.** [BRIANT, A. K.] pp. 37. Zanzibar: Government Printer. Shs. 2/- [Items of veterinary interest pp. 7, 21 & 22.] **1645**

In March a disease simulating mild FOOT AND MOUTH DISEASE appeared in northern and central Pemba. Movement control prevented its spread except to a limited extent. Diagnosis was never established.

The diagnostic and curative services were maintained at veterinary headquarters in Zanzibar and Pemba, where 7,782 animals (4,460 cattle, 2,202 poultry) were treated.

Ten cattle dips were maintained, but many owners do not like to dip their cattle.

Care was taken to prevent disease being introduced by animals entering the country. Dairy cattle imported from Kenya were required to be inoculated with F. & M. DISEASE vaccines, types A & O. Store cattle imported from Tanganyika brought with them a virulent form of EAST COAST FEVER accompanied by PIROPLASMOSIS.

EPIZOOTIC LYMPHANGITIS was confirmed in a donkey by cultural methods. At Zanzibar town slaughter house, three cases of TUBERCULOSIS were recorded.

Trials were carried out with antrycide prosalt against TRYPANOSOMIASIS. Groups of 61, 43, and 374 cattle each, were treated twice with a five-month interval. Injections were given in the dewlap, caudal fold and shoulder, sub-

cutaneously. The caudal fold gave the best results. A small number of positive cases appeared in treated animals, four and five months after treatment. Those that did not then respond to antrycide methyl sulphate, were treated successfully with ethidium bromide.

—D. S. RABAGLIATI.

BELGIAN CONGO. (1958). Rapport Annuel 1957 du service vétérinaire et de l'élevage du Congo Belge. **[Veterinary Service and Animal Husbandry in the Belgian Congo. Annual report for 1957.]** pp. 19. **1646**

The report is largely concerned with animal breeding, the European and African methods and statistics being recorded separately.

Amongst diseases mentioned are THEILERIOSIS due to *Theileria parva*, TRYPANOSOMIASIS, RABIES, and BRUCELLOSIS (which causes but little economic loss in some provinces while it is of importance in others). TUBERCULOSIS is of importance in some districts, and in North and South Kivu districts tuberculin testing is compulsory for dairy cattle.

*Cysticercus* in both cattle and pigs is prevalent in some districts.

In the province of Kasai the breeding of goats is on the decline, chiefly because of the damage they do to crops.

There are veterinary laboratories at Elizabethville and at Stanleyville. Their chief function is diagnosis and the production of vaccines and sera. The staffs also studied the viability of anti-rabies vaccine and its immunizing power, "MEASLES" (*Cysticercus*), and CONTAGIOUS DERMATITIS in cattle [STREPTOTHRICOSIS] and problems affecting African fauna.

The report contains several statistical tables and graphs.—D. S. RABAGLIATI.

## BOOK REVIEWS

LAPAGE, G. (1958). **Parasitic animals.** pp. xxiii + 355. Cambridge: W. Heffer & Sons Ltd. 2nd edit. 25s. **1647**

Parasitism is a relationship which involves many species throughout most of the major groups of the Animal Kingdom. The majority of the examples discussed in this book are of medical or veterinary importance—a relatively small proportion of the whole field. This does not detract from the value of the book and for some readers may actually increase it. It was however to be expected because these species have been more thoroughly investigated and the author's own experience has been in applied parasitology.

Nevertheless he has taken a broad view of his subject, dealt adequately with general principles and succeeded in producing a very readable and valuable volume for the general reader as well as for students and teachers of parasitology.

A measure of the success of the first edition of this book is the call for a new edition which has provided an opportunity for a few small changes and the inclusion of a bibliography of further reading.

The new publishers have improved the reproduction to a standard more appropriate to the many line drawings and excellent photographs.—L. P. JOYNER.

EIBL, K. (1959). Lehrbuch der Rinderbesamung. **[Textbook of artificial insemination of cattle.]** pp. xv + 485. Berlin (& Hamburg): Paul Parey. DM 74. **1648**

The author has kept in mind the need to complement and bring up to date the existing German textbooks by Götze and Küst-Schaetz. There is considerable detail on many important aspects, such as use in Germany of electro-ejaculation methods; and on spermatozoa morphology, largely as revealed by Bretschneider's work with the electron microscope. The section on semen quality evaluation includes reference to the use of testicular biopsy and the fructolysis test as well as comparisons of various "rapid" methods of density measurements. The development of the Illini variable temperature (room-temp.) storage process is discussed; as is the deep-freezing process. The possibilities of freeze-drying semen are briefly described. These strictly technical aspects of the subject occupy the first 187 and the last 130 pages. The two middle sections deal with livestock improvement (and also with disadvantages alleged against the practice of A.I.); and with the organization of centres.

The use of A.I. in disease control is briefly discussed in general terms, as are measures against the spread of infection into centres and through international traffic in semen. The advantages and disadvantages of large *versus* small bull centres are discussed and the housing and feeding of the bulls considered at some length. In general this is a well-informed and highly competent work, copiously and clearly illustrated. Although references to original work by authors' names besprinkle the text, the bibliography is restricted to textbooks, of which 71 are listed.—F. L. M. DAWSON.

MAHADEVAN, P. [Livestock Research Officer, Department of Agriculture, Ceylon.] (1958). **Dairy cattle breeding in the tropics.** pp. xiii + 88. Farnham Royal: Commonwealth Agricultural Bureaux. 15s. [Technical Communication No. 11 of the Commonwealth Bureau of Animal Breeding & Genetics, Edinburgh.] **1649**

The object of this monograph has been to assemble and to review critically the more reliable information on the breeding for milk production of indigenous cattle in the tropics. Among the aspects considered are: age at first calving; variation of milk yield with age; length of lactation; composition of milk; and mortality and replacement. There are 14 photographs of cows of various breeds.—R.M.

## BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review]

BOGART, R. (1959). **Improvement of livestock.** pp. xx + 436. New York (& London): Macmillan Company. 47s.

FERRANDO, R. (1959). Les bases de l'alimentation. **[Principles of animal nutrition.]** pp. viii + 246. Paris: Vigot Frères. Fr. 2950.

MILLER, A. R. (1958). **Meat hygiene.** pp. 557. Philadelphia: Lea & Febiger. 2nd edit. $8.50.

PALLASKE, G. & SCHMIDEL, E. (1959). Pathologisch-histologische Technik. **[Histopathological technique.]** pp. vii + 225. Berlin (& Hamburg): Paul Parey. DM 39.60.

RANDHAWA, M. S. (1958). **Agriculture and animal husbandry in India.** pp. xvi + 364. New Delhi: Indian Council of Agricultural Research. Rs. 15.00.

SMITH, H. R. (1958). **The conquest of bovine tuberculosis in the United States.** pp. 64. Somerset, Michigan: The Author. $1.00.

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius;* so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius,* where titles of all publications indexed by the bureau are fully cross-referenced.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

**Books for Review.**

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.

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## ERRATA

*V.B.* 29, abst. 766. (p. 136, line 2.). The journal reference is wrongly given as "*J. Hyg., Camb.*" It should read: *Amer. J. Hyg.*

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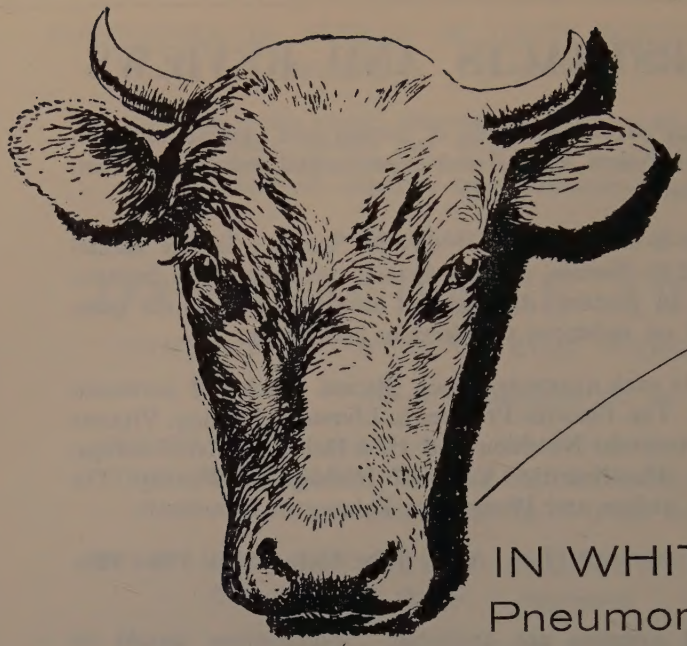

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